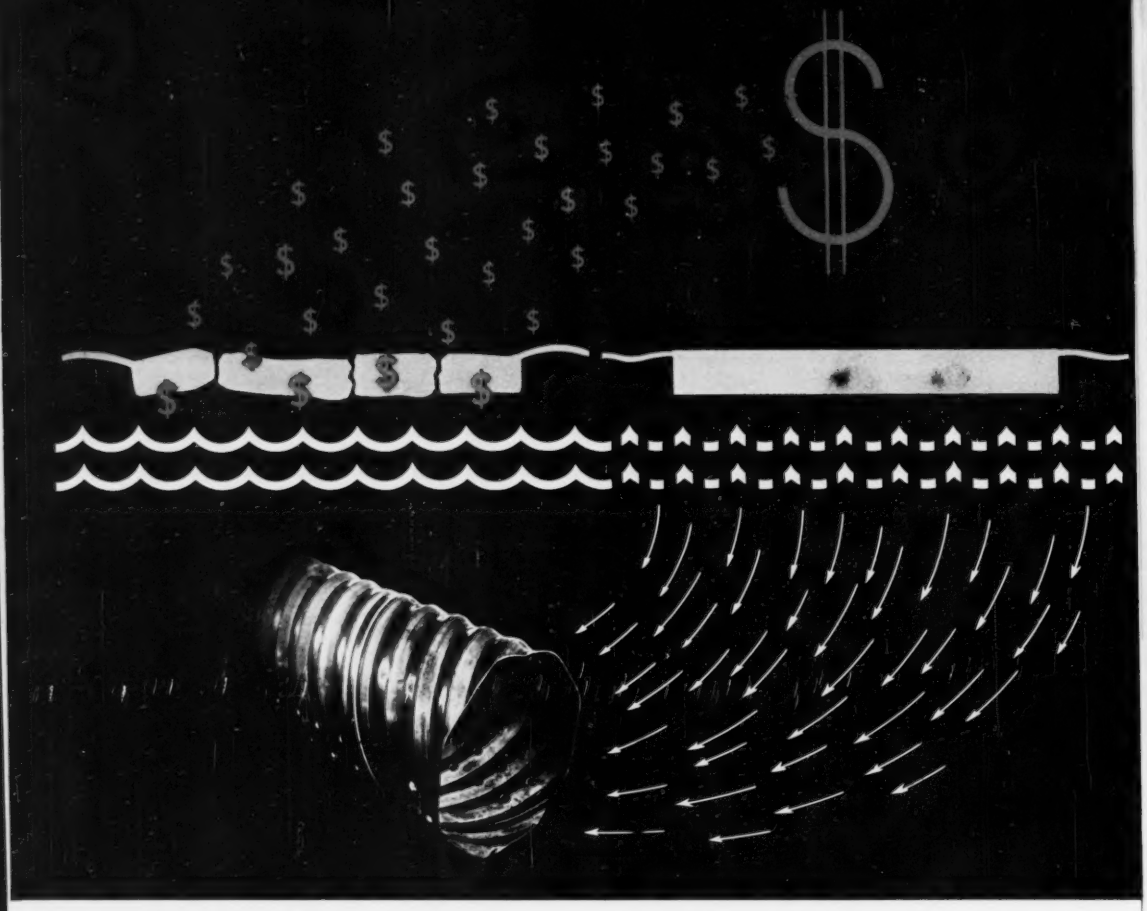
ENGINEERING NEWS-RECORD

A McGRAW-HILL PUBLICATION

JULY 21, 1949

Etowah River in flood over low monolith at Allatoona Dam in Georgia

MAKING SAND DRAINS STICK IN THE MUD



A lot of overhead was underfoot

Highway engineers and officials used to worry about the cost of repairing expensive pavements that broke up year after year. Cures were often only temporary even when it was known that the troublemaker was harmful groundwater lurking in the subgrade. Then ARMCO Engineers said: "The only sure cure is to drain the water out and *keep it out.*"

To do this they developed ARMCO HEL-COR Pipe and perforated it. Scientifically placed holes collect unwanted water, which is drained off along the pipe invert. Subgrades become dry and stable. Made on automatic machines, HEL-COR Pipe meets all the needs of a first-class subdrainage system. It is low in cost, easy to handle and durable. It also has ample strength to withstand shifting soils, frost action or the impact and vibration of heavy loads without crushing, cracking or disjointing.

Providing better products to meet specific needs has been standard practice at ARMCO for more than 40 years. A few examples are FLEX-BEAM Guardrail, Spiral Welded Pipe, STEELOX Buildings, PIPE-ARCH and sturdy, dependable MULTI-PLATE Bridges.

Today you can bring your drainage and construction problems to ARMCO with full assurance you will receive all the benefits of long experience, extensive research facilities, and a real interest in helping you solve these problems.

ARMCO has a complete range of engineered products and convenient authoritative data to help you. If your problem is difficult or unusual why not talk it over with us.

ARMCO

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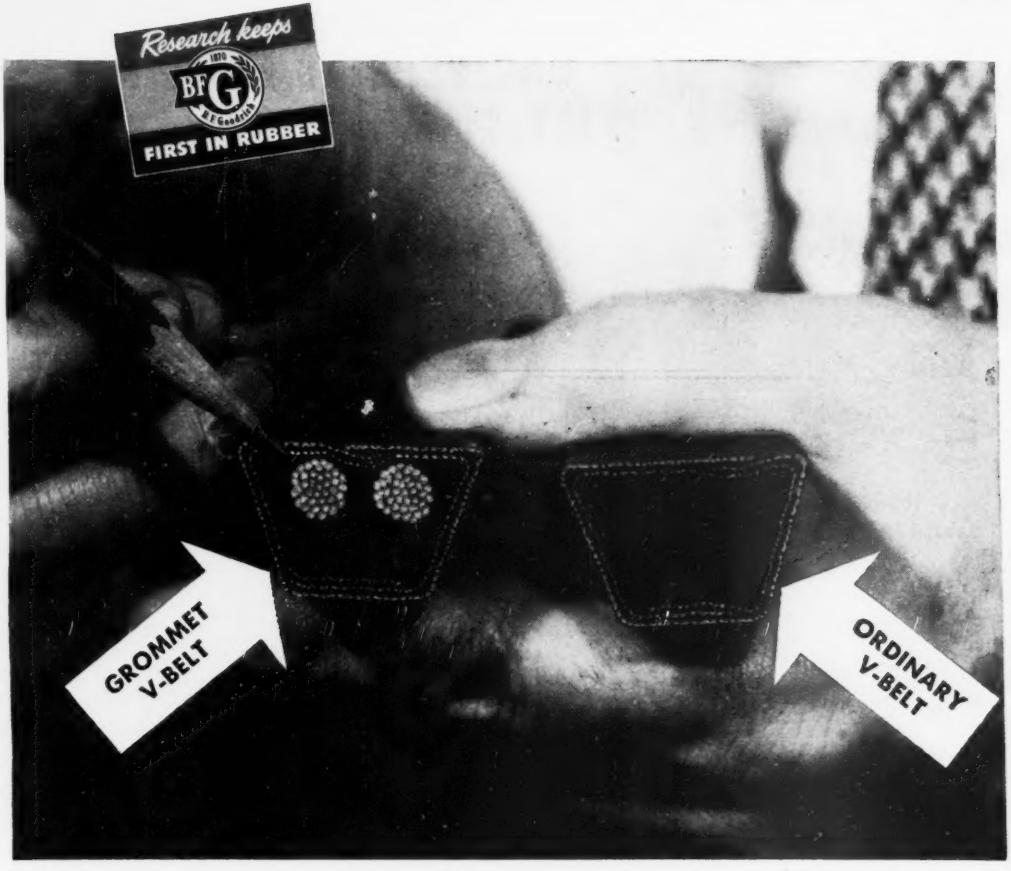


20 to 50% more V-belt value at no extra price

Exclusive B. F. Goodrich grommet construction cuts belt costs

B. F. GOODRICH grommet V belts are actually a premium belt at *no extra price*, because they deliver more horsepower and outlast ordinary V belts of the same size. Grommet construction (U. S. Patent No. 2,233,294) is the reason these belts give you more for your V-belt dollar.

Higher flexibility, better grip — A grommet is endless, made by winding heavy cord on itself to form an endless loop. It has no overlapping ends (as in an ordinary V-belt cord section), no weakened, stiff section where a "splice" occurs. This means better flexibility, better gripping power — up to ⅓ more power to you!

Concentrated cord strength — All the cord in a grommet V belt is in the twin grommets, placed close to the pulley driving faces for maximum power delivery. There is no wasteful dispersal of cord strength, no uneven load distribution. That is why — size for size — grommet V belts can take heavier shock loads, with a higher safety factor.

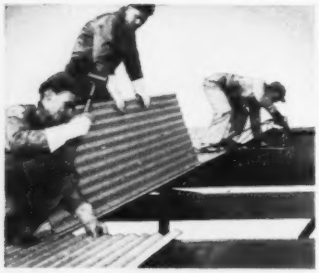
20 to 50% longer life — Grommet V belts, tested on multiple drives, actually lasted 20 to 50% longer than ordinary types of Multi-V belts! For one thing, 85% of the failures that occur in ordinary belts at the "splice" section, cannot occur in grommet belts where the cord is *endless*. And all the cords work equally in a grommet belt, no cords overwork. Less heat is generated, cord and adhesion failures are fewer.

Twin grommet construction is a B. F. Goodrich "exclusive". Now made in D and E sizes only. To make sure you get genuine grommet V belts, see your local distributor. *The B. F. Goodrich Company, Industrial and General Products Division, Akron, Ohio.*

Grommet V Belts BY

B.F.Goodrich

Roofers stay on top... Costs go way down!



Corrugated Iron or Aluminum Applied *Faster and Better* with

Better jobs, completed faster, with savings of 25% or more in application costs! Little wonder that roofing contractors everywhere are adopting the Nelson "Top-Side" method of securing corrugated iron, aluminum and protected metal.

In this remarkably simple method, Nelson "Rivweld" rivet studs are end-welded to the purlins in a split-second with the Nelson gun. The corrugated metal is then impaled on the rivet extensions which are riveted over to form a weather-tight job.

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Big cost-savings are also being attained with Nelson Stud Welding in applying corrugated asbestos roofing and siding, in installing sprinkler and piping systems, conduit and wireways, insulations of all types, wire mesh reinforcement for gunite.

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Division of Morton Gregory Corporation
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ENGINEERING NEWS-RECORD

VOLUME 143 JULY 21, 1949 NO. 3

WALDO G. BOWMAN
Editor

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Your Northwest gives you the smooth, steady operation hour after hour that keeps the trucks rolling.

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Cast steel machinery bases and machinery side-frames keep shafts in alignment and reduce wear, and many other Northwest features keep the dollars swinging. You can't afford anything but the best for the heart of your job. Plan now to have a Northwest in the *Key Spots* on your job. Let us tell you how.

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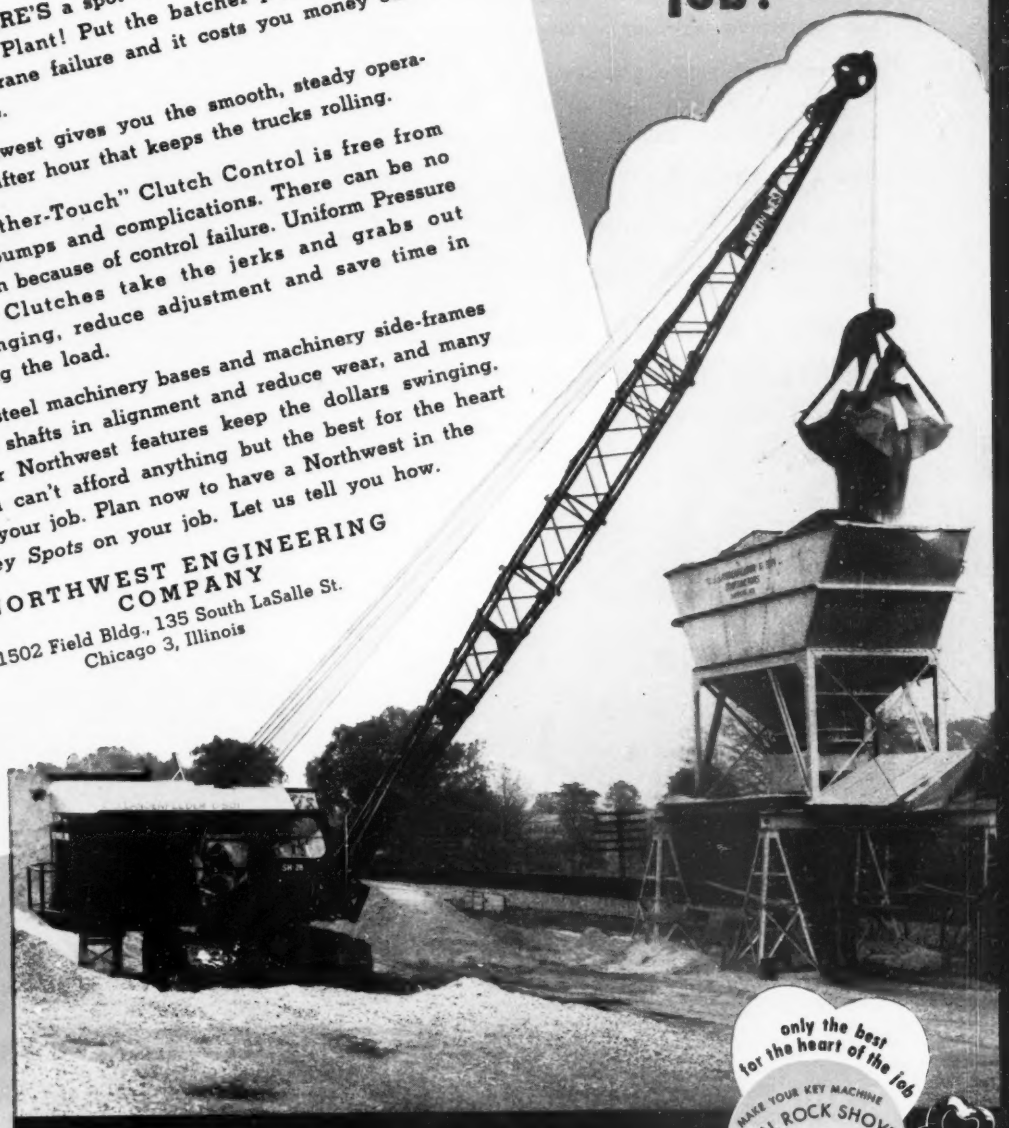

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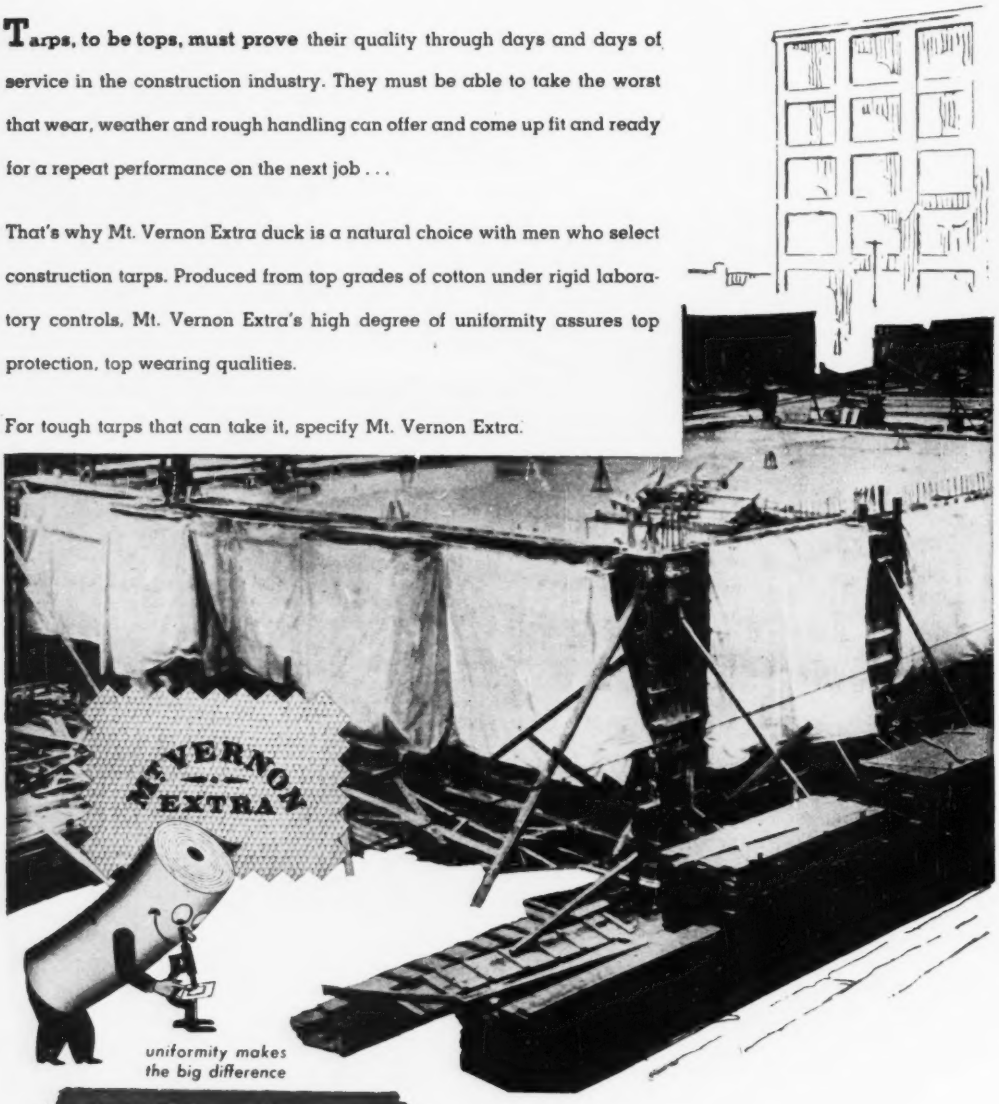
Top Tarps Must Be Tough

Tarps, to be tops, must prove their quality through days and days of service in the construction industry. They must be able to take the worst that wear, weather and rough handling can offer and come up fit and ready for a repeat performance on the next job . . .

That's why Mt. Vernon Extra duck is a natural choice with men who select construction tarps. Produced from top grades of cotton under rigid laboratory controls, Mt. Vernon Extra's high degree of uniformity assures top protection, top wearing qualities.

For tough tarps that can take it, specify Mt. Vernon Extra.



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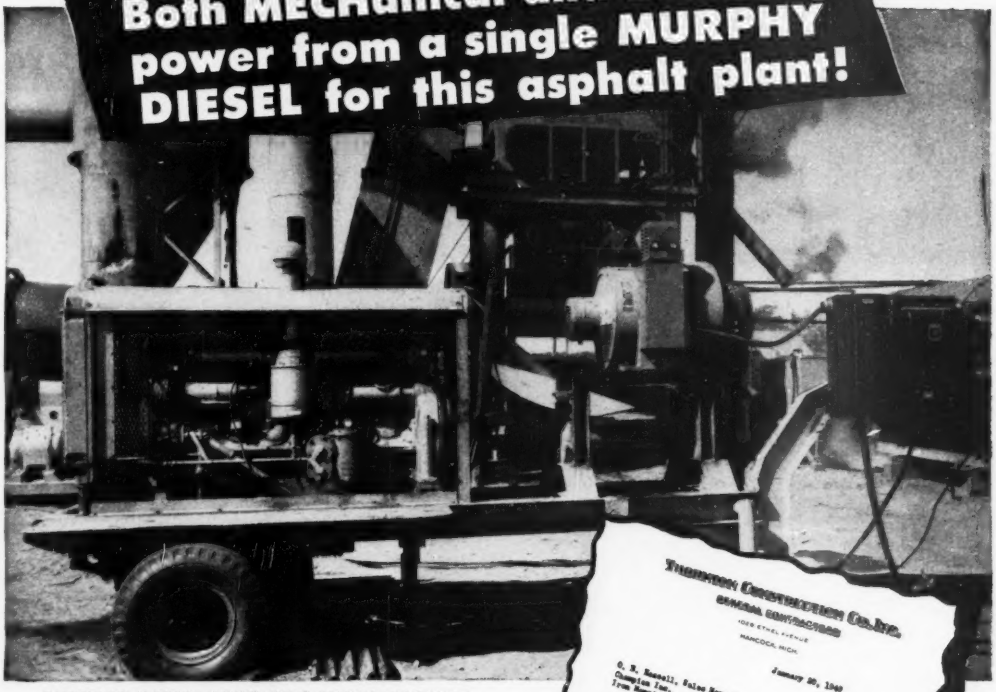
Both MECHanical and ELECtric power from a single MURPHY DIESEL for this asphalt plant!



MURPHY DIESEL MECH-ELEC UNITS PROVIDE A COMPLETE POWER PACKAGE

FOR jobs where the advantages of a mechanical drive are necessary for the major load, but the flexibility of electrical power is desirable for secondary loads, Murphy Diesel now offers the MECH-ELEC Unit. A complete, packaged power plant, it is capable of delivering varying proportions of mechanical and electric power *simultaneously*. Electric power as required, up to 50 K.W., may be taken from the generator while the remaining unused portion of the engine's full rated power can be taken off the shaft mechanically. The generator can be operated without engaging the mechanical drive.

Two MECH-ELEC models are now available: The Model ME-6, rated at 135 H.P. continuous, 160 H.P. intermittent; and the Model ME-66, rated at 150 H.P. continuous, 180 H.P. intermittent. Both are equipped with 50 K.W. generators. The ratings indicate the total mechanical power available.

Ask your Murphy Diesel Dealer for full information or write direct.

January 20, 1949

G. H. Russell, Sales Manager
Champion Inc.
Iron Mountain, Michigan

Dear Mr. Russell:

Last spring we purchased from you a Murphy ME 66 Diesel Power Plant to drive your 3000 Madsen Portable Asphalt Plant, to drive the entire asphalt mixing plant direct. The driver, and dust collector are driven by a separate electric motor. The electricity is developed by 70 KVA generator driven from rear shaft on Diesel.

We were a little afraid we were expecting too much from the Murphy Diesel but we are pleased to say it completely filled our power requirements. The governing on this diesel is the closest thing we have ever seen and is completely uniform-ity.

We are happy to say that the Murphy Diesel ME 66 has been very satisfactory and the combination of Diesel and Electric Gener-ator has made the plant more portable and is a desirable com-bination.

Yours truly,

THOMPSON CONSTRUCTION CO., INC.

P. W. Thompson, President

PWT:JP

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Milwaukee 14, Wisconsin

MURPHY DIESEL

Murphy Diesel Engine and Power Units, 90 to 220 H.P. Generator Sets, 60 to 133 K.W. Combination MECHanical and ELECtric Power Units. 135 to 180 H.P.

Assure maximum

GUARD OPEN GEARS AGAINST WEAR — Protect your open gears with the recommended grade of *Texaco Crater X Fluid*. Although it is liquid when applied, it quickly forms a tough, lasting film that cushions shocks, reduces wear, prolongs gear life, assures quieter operation. Easily applied by brushing, spraying or pouring.

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compressor efficiency Under All Conditions

Use Texaco air compressor oils and Texaco Lubrication Engineering know-how to help improve your compressor operation

WHATEVER the type or size of your compressors — whatever your operating conditions — there is a specific Texaco air compressor oil that will assure full volume and pressure, longer compressor life, minimum cost for maintenance.

Texaco has a *complete* line of air compressor oils — straight mineral oils for regular service . . . rust-inhibiting oils where rust is a threat . . . heavy-duty oils for unusually severe service or where carbon and gum are problems . . . compounded oils where water is present—oils designed to prevent wear and to keep valves clean, rings free, ports open and air lines clear *under all operating conditions.*

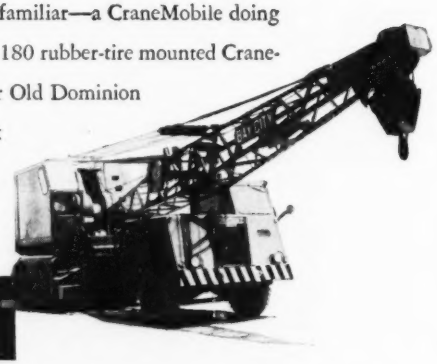
Let a Texaco Lubrication Engineer help you select the Texaco air compressor oils you need to assure best results. Just call the nearest of the more than 2300 Texaco Wholesale Distributing Plants in the 48 States, or write The Texas Company, 135 E. 42nd St., New York 17, N. Y.

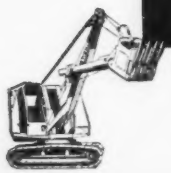
Lubricants and Fuels
FOR ALL CONTRACTORS' EQUIPMENT

Big Job Made Easier

with a BAY CITY CRANEMOBILE

Here's a sight that is becoming more and more familiar—a CraneMobile doing a fast, efficient job on steel erection. This model 180 rubber-tire mounted CraneMobile having a 20-ton capacity, is working for Old Dominion Hoisting Service on the Pan-American Annex in Washington, D. C.





BAY CITY

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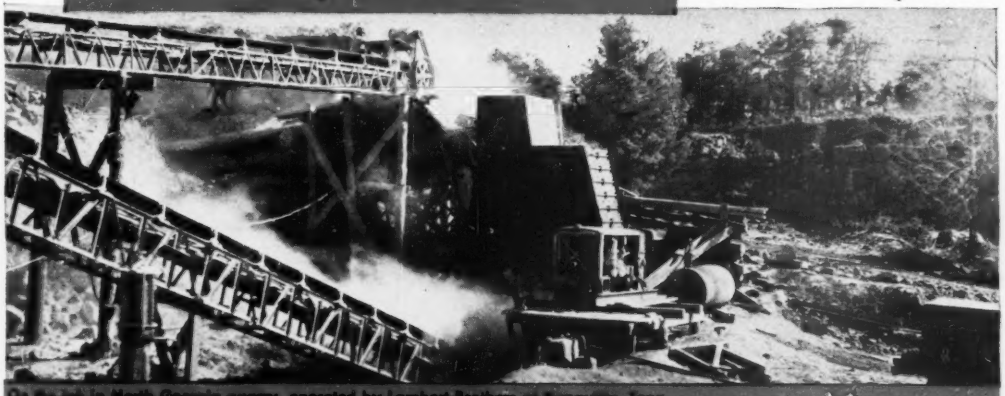
BAY CITY SHOVELS, INC., BAY CITY, MICHIGAN

See your nearest Bay City dealer for excavating and material handling equipment in sizes from ⅜ to 1¼ yards, with crane rating up to 20 tons. Both crawler and pneumatic tire mountings.

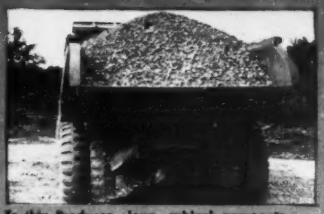
In Georgia limestone . . .

Dual Impact Action does it again

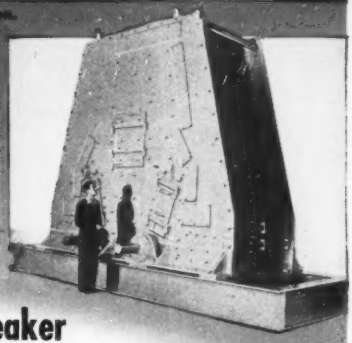


On the job in North Georgia quarry, operated by Lambert Brothers of Knoxville, Tenn.

From this: New Holland Model 5050 Breaker accepts run-of-quarry rock up to 50"...



To this: Produces clean, cubical aggregate passing -4" in one operation . . .



New Holland Model 5050 Double Impeller Breaker

reduces 50" material to commercial sizes in single pass . . .

• **Like all New Holland Breakers,** the new Model 5050, recently installed by Lambert Brothers, is a field development . . . designed to work in all types of rock, under all conditions . . . built to produce maximum aggregate at minimum cost. Simple, sturdy construction keeps costs *down*—production *up*.

Here are some quick facts—more on request:
Produces up to 400 tons per hour on 300 h.p. Heavy duty steel outer plates. Interior lined with manganese steel wear plates. Spherical roller bearings. All parts accessible; all adjustments easily made by average workman. Mounted on heavy I-beams to simplify installation. Weight 54 tons.

New Holland Double Impeller Breakers are used, recommended by operators everywhere. Get the facts. Write for complete information including location of installation nearest **you.** Address: Department E-79,

Read

what W. E. Lambert, of Lambert Brothers, Knoxville, Tenn., says about New Holland Model 5050 Double Impeller Breaker shown above.

"The ability of this breaker to reduce 50" material to commercial sizes in one pass is remarkable . . ."

W. E. Lambert

NEW HOLLAND DOUBLE IMPELLER BREAKERS

NEW HOLLAND MANUFACTURING COMPANY, MOUNTVILLE, PA.

Affiliate of the Sperry Corp.

GLUTTON

A Glutton for Punishment, powered by a diesel engine with matchless lugging ability and stamina—this is the tractor for you to use on heavy, back-breaking jobs. The International Crawler, with broad-gauge stability, balance and geared-to-the-ground traction, is the worker you need. • Its powerful engine takes tough work in stride, with increased torque for heavier lugging when the load demands it. All-weather starting, advanced-design combustion, full pressure lubrication and other features make it *your obvious choice* among tractors! Compare the operating features and work capacity of the International with any other . . . and you'll insist on an International every time!

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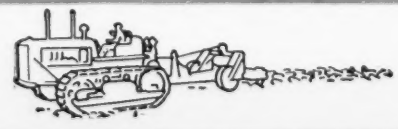

An International TD-14 Diesel Crawler puts these rocks in their place with its hydraulic blade while pioneering a roadway. An all-around workhorse on construction jobs of every kind—a landscape grader, basement excavator as well as versatile road builder—equally useful with blade, ripper or scraper—it will pay its way wherever you put it to work. For full information about this and the 6-cylinder TD-18, write for TD-14 and TD-18 folders.

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IRVINGTON *offers* TECHNICAL AID TO THE CONTRACTOR

When you plan to pour concrete, and there's going to be an unusual form problem—or a new twist on a more or less standard operation—tap Irvington's technical knowledge.

Our files, and the minds of our specially trained and experienced engineers, hold data, results, methods, know-how—and all those intangibles that cut corners, reduce costs, avoid headaches. These are the products of hundreds of jobs, the results of our own experiences and observations, as well as those of constructors who use our forms and report back.

MITTRY BROS. Construction Co. used a series of *standard* Atlas Speed Forms, placed *vertically*, for cantilever form construction on the Hulah Dam, in Hulah, Okla. which they are building for the Engineers Corps, U. S. Army. Irvington is gratified to say that its technical staff were called on by Mittry Bros. for consultation on some of the problems involved.

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NEWS BRIEFS

Contract Work's Better—Contract work is the best way to carry out any public works program, particularly one involving highways, according to Burton F. Miller, of the American Road Builders' Association. He declared that "contractors' know-how is available again in ample quantity," and cited figures to prove that bids are coming down with the levelling of material and labor costs. In April, 1949, Miller added, work estimated by federal engineers to cost $69,429,466 was bid in at 9.5 percent below that figure.

Wanted: Bidding Competition—Bidders on Ohio state highway construction contracts must get along henceforth without knowledge of the department's estimates as to job costs. Director Theodore J. Kauer said that after July 19, when bids on 60-odd projects which may aggregate as much as $5,000,000 were tabulated, no more estimates would be available. "We want the contractors to bid what they think a job is worth, and not to bid against our estimates," Kauer said.

Bondholders Love It—Fourth of July weekend traffic on the Pennsylvania Turnpike this year set a new record—85,093 vehicles in the four-day period—16 percent above the comparable period of last year. Peak was reached July 2, when 24,735 vehicles paid fares. June revenues exceeded those of June, 1948, by 17.2 percent, largely due to a heavy increase in truck traffic.

Highway Spending Booms—Pennsylvania spent one-fourth as much for highway contracts in 1947 and 1948 as it spent in the preceding 28 years. From 1919 through 1946, the Commonwealth spent $651,678,000 on highways, averaging $23,274,000 yearly. Contracts during the last two calendar years totalled $159,129,000, averaging $79,565,000 yearly.

Vets Recover on Housing—Tighe E. Woods, federal Housing Expediter, says his office has recovered $1,596,735 for veterans who either were overcharged on priority-built housing or who failed to get everything the specifications called for. All but $166,803 of it was recovered without litigation, too. When that total was reached, there were 20,085 cases in various stages of processing at OHE offices.

(Continued on page 14)

"CLOSE-IN" DIGGING with a BUCYRUS ERIE HYDROCRANE

THE completely hydraulic Hydrocrane gets in close on excavating jobs where the big clams won't fit. Telephone wires, buildings, walls, fences, low ceilings won't stop the easy-to-handle Hydrocrane. Precision hydraulic control and telescoping boom make it easy to use on the "close-in" work. It is truck mounted, travels at truck speeds and has proved very economical on small-yardage jobs where a larger machine is impractical.

Hydrocrane owners also report doing hundreds of other excavating jobs such as:

- Small swimming pool
- Septic tanks
- Catch basins
- Column footings
- Telephone manholes
- Basement enlargement
- Small foundations
- Gasoline and fuel tanks
- Sump holes for irrigation
- Shallow wells
- Water lines
- Trenches

In addition to a clamshell bucket, you can use it with a magnet, grapple, catch basin bucket, trash or snow bucket. Two models — ¼-yd. 2-ton H-2 and ⅜-yd. 3-ton H-3. For the complete story on the Hydrocrane just fill out the coupon. 45H49

BUCYRUS-ERIE HYDROCRANE DIVISION
SOUTH MILWAUKEE, WIS.

See what these owners say.

SEWER WORK AND HOUSE CONNECTIONS, DIGGING DEEP HOLES, GENERAL EXCAVATING

"I like the Hydrocrane because it's easy to handle, fast to move, very efficient in real tight quarters — especially working below overhead wires and beams and also between buildings. It's handy between sidewalks and curbs for sewer work." ALBERT J. VALENTINO
D-V Construction Company
West Allis, Wisconsin

EXCAVATING AND SINKING OIL TANKS

"We worked inside of a factory building. The head room was so low I had to work with a flat boom except when loading truck. The telescopic boom made it possible to reach everything without moving. If not for the H-2, they would have had to have eight men working two full days. I did it in thirteen hours."
THOMAS M. CASEY
Buchanan, Michigan

FOR ALL TYPES OF EXCAVATING JOBS

"I've done work with my Hydrocrane that other machines couldn't get close enough to do. I've done almost every type job that calls for that type machine — from digging graves to hoisting steel beams."
BILL JOHNVIN
Mountain, Michigan

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BUCYRUS-ERIE HYDROCRANE DIVISION
SOUTH MILWAUKEE, WIS.

I want the full story on the Hydrocrane

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COMPANY.....

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CITY.....STATE.....

No Other Hydraulic Jack Equipment Can Do All the Work Of Porto-Power®

Insist on using Porto-Power wherever possible. Replace many dangerous, time-consuming methods and devices. It costs you money to be without Porto-Power!

Porto-Power differs greatly from ordinary hydraulic jacks. The pump and all-directional ram are separated by a flexible safety hose. Porto-Power attachments quickly harness the compact, threaded ram for push, pull, bend, press, and spread jobs.

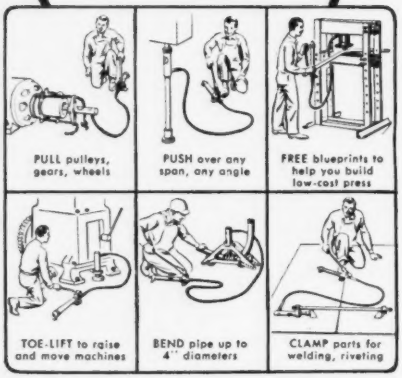
Check this List

—Porto-Power serves on these jobs and many more

• General Construction
—shoring operations — shift and level heavy equipment — lift equipment for loading — straighten metal concrete forms — tighten anchor chain, cable, etc. — clamp or shore plates together for welding — lift and align structures together for riveting, welding—rescue work — push header sections or temporarily support roof shields—bend rail and pipe.

• Maintenance Work
—straighten buckets—straighten frames and panels on earth and rock moving machines — insert or remove bushings, pins, bolts and shafts — spread heavy malleable conveyor links for replacement — straighten drive shafts on conveyors — pull pulleys, gears, wheels — rebuild vehicle panels, frames, axles.

• Gauge-Equipped Porto-Power Does This:
Check weights of large structural sections — test breaking point of materials — test load bearing qualities of soil—draw cables to specified tension—sink piling to predetermined loads.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Housing Slump—Permanent, nonfarm housing starts this year will run between 825,000 and 850,000, according to a revised forecast published by the Producers' Council. That's a 9-12 percent drop from 1948, but still higher than any other year since 1926. Dollar volume will be off about 17 percent, to $6 billion, reflecting a decline in average cost. Performance during the first five months was 10 percent below starts during the comparable period in 1948.

Municipal Expansion — Lafayette, La., has ok'd a plan for an $8,062,000 expansion of city facilities. It will include a $2,800,000 power generation and distribution system; a $2,300,000 water distribution system; $1,900,000 for sewage disposal; and $1,062,000 for other improvements. Voters already have approved a $7,000,000 bond issue and a 3.3-mill tax.

Contracts Below Estimates — Los Angeles County supervisors have let contracts totaling $2,050,647 for construction of an eight-story addition to General Hospital. The job had been estimated at $3,300,000, but only one contract, that for electrical work, remains to be let; so the final figure should beat the estimate. The general construction contract went to Stanton-Reed Co., at $1,610,729.

Arizona Road Budget—There's $9,000,000 of new money in Arizona's $22,110,574 highway budget for new roads and completion of existing projects. Of the new money, $5,100,000 will come from federal aid.

Virginia's New Highways — Construction schedules for Virginia's Highway Department during the year started July 1 anticipate available revenues of about $43,000,000. Funds for primary construction are expected to run to $22,042,000, for secondary construction, $20,990,000. Not all work which is scheduled will be put under contract immediately, though. Allocations of funds are to be based upon revenue accruals throughout the year.

Boston Acts Promptly—Within days after the new federal housing act became law, Boston's Mayor Curley announced plans for four new housing projects, to shelter 4,300 families, at a cost of $60,000,000. Two slum clearance projects will be in the South End, one in South Boston and the other in East Boston. They're to be three-story, walk-up, garden-type apartments. Each of the four projects is expected to cost about $15,000,000.

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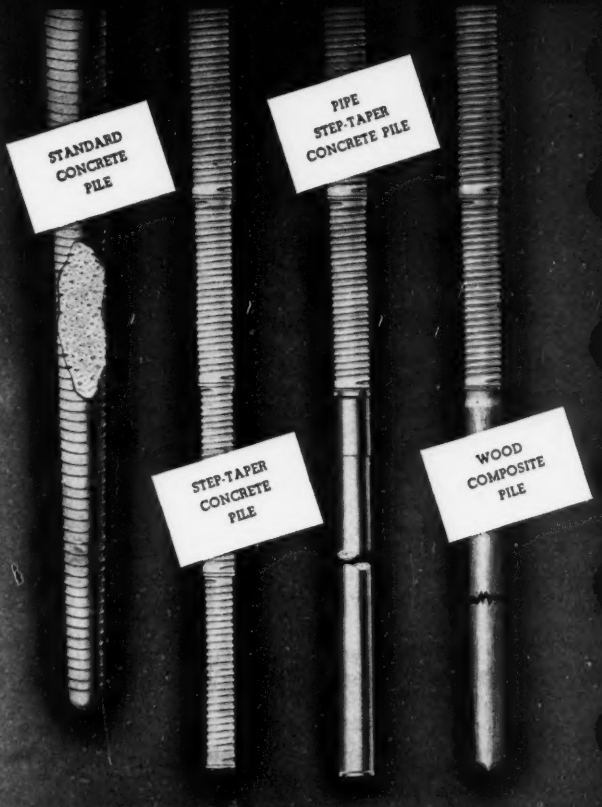

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Regardless of variations in subsoil conditions, Raymond piles can be driven to any depth required to attain uniform bearing capacity for the whole foundation.

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THE CONSTRUCTION WEEK

ECONOMIC REPORT'S FUTURE — President Truman's economic report doesn't change much of anything in Washington—except that it buries talk of inflation once and for all. The President simply served up his January program once more, leaving out only those proposals that would be downright deflationary. Efforts to build up pressure behind the program just can't carry very far; it's too late in the session.

Here's the outlook for the eleven proposals in the report:

Taxes—No increase in gift and estate taxes; not enough time left for liberalization of loss carryovers; freight tax repeal possible.

RFC Loans—Not even a vote on the proposal for loans longer than ten years.

Plant expansion study—No chance.

Farm price supports—Vote of part of the Brannan Plan likely.

Minimum wage—60-65 cents an hour likely, not Truman's 75.

Unemployment compensation—No increases.

Jobless veterans pay—Bare chance of extension.

Social security—No increase in benefits or extension of coverage.

Public works shelf—No more than the $40,000,000 for federal buildings already authorized.

Point Four—Nothing likely for now.

Reciprocal trade—Sure to pass, but likely with GOP peril points retained.

INDUSTRIAL BUILDING UPSWING — New Jersey's Commission of Labor and Industry sees clear indication of an upswing in industrial building in that highly industrialized state. Figures compiled by the department's bureau of engineering for the 12-month period ending June 30 show that 1,961 plans for industrial construction were approved, totaling $51,332,000. This total was only exceeded by the all-time high of $59,000,000 in the 1945-46 period when post-war construction was at its peak.

SUBSIDENCE AND REPRESSURING—There is little likelihood of any action soon on water repressuring of the oil-producing zones to stop or reduce the rate of subsidence in the Long Beach-Terminal Island area in California. Such a program, as recommended in a recent Navy report (ENR June 16, p. 11), would require at least 4 years to iron out all the legal involvements and make preliminary engineering studies. Local experts contend that 85 to 90 percent of the total subsidence may well occur by 1955—before repressuring could take effect. Oil producers strongly disagree with the Navy report, both as to cost and feasibility of repressuring. They consider it too risky to existing oil supplies and contend that therefore development of the additional oil is a marginal investment (a cost of $510 million is estimated for a profit of $240 million). Besides that, even with considerable repressuring experience elsewhere, no data or experience are available to predict amount of check to subsidence that could be expected.

MORE THAN ENTHUSIASM NEEDED—A report that a cooperative low-cost housing project at Wright Field in Ohio is in the process of liquidation points to the need for more than enthusiasm and an intriguing idea when it comes to large-scale construction operations. Five hundred homes for veterans and air-base personnel were planned. What the project lacked was adequate financing arrangements and men with construction know-how to do the initial planning. When costs began to mount above original estimates and there were no reserves to meet them, the scheme collapsed.

FOREIGN POLICY—A shift in U. S. foreign policy is shown in congressional foot-dragging on measures to provide funds abroad. The trend is toward economic isolation. Already feeling the domestic economic pinch, Congress is (1) nibbling at Marshall Plan money, (2) trying to duck voting money for arms to back the Atlantic Pact, and (3) simply shelving Truman's Point Four for now. Postwar foreign policy has so far been the political containment of Russia. But now that the jockeying for position is over, the question is: How much longer are we to subsidize those nations on our side of the East-West dividing line? The Marshall Plan—following the loan to Britain—is still not the final word in filling Europe's financial needs. Realization that more yet is needed comes at a time when domestic political pressures are toward cost cutting, and signs pointing toward increased economic isolation multiply.

OFF HIS CHEST—L. F. Harza, Chicago consulting engineer has no use for the Russians and their tactics. In an open letter to Congress, he has said so in terms that seem to belie his genial appearance and usually softspoken manner. Anyone who feels inclined to criticize engineers for not taking a definite stand in international issues should ask Mr. Harza for a copy of his letter.

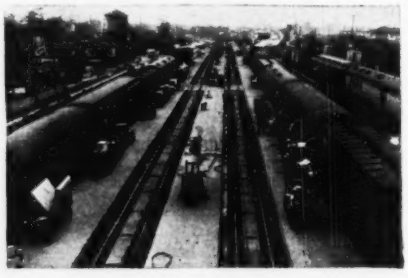
WHAT IT TAKES TO MAKE A *Champion*

New station facilities at Florence, S. C. will accommodate passenger trains up to 20-car length. 117 new lightweight streamlined cars are being added in Atlantic Coast Line's, New York-Florida service.

'INCOR' SPEEDS FORM RE-USE IN TRACK AND PLATFORM REBUILDING AT KEY A.C.L. STATION — Part of $25-Million Modernization Program

THIS year marks the tenth anniversary of a great streamliner, The Champion. It takes a lot of special qualities to make a "Champ"—and the Atlantic Coast Line has what it takes. A recent $25-million modernization program, for example, includes complete rebuilding of yard and station facilities at Florence, S. C., key station on the New York-Miami run. Specially newsworthy is the use of concrete track slabs to provide adequate drainage and eliminate reballasting.

In track-slab construction, dependable 'Incor' high early strength helped speed re-use of steel forms, making it possible to return tracks to traffic 5 or 6 days sooner. Track sections were poured in place in sections 9' 9" long, with 13" minimum depth under the track and 6" in drainage section. Slabs were placed in alternate sections, two gangs producing an average of 20 sections a day. All work was done by A.C.L. forces.



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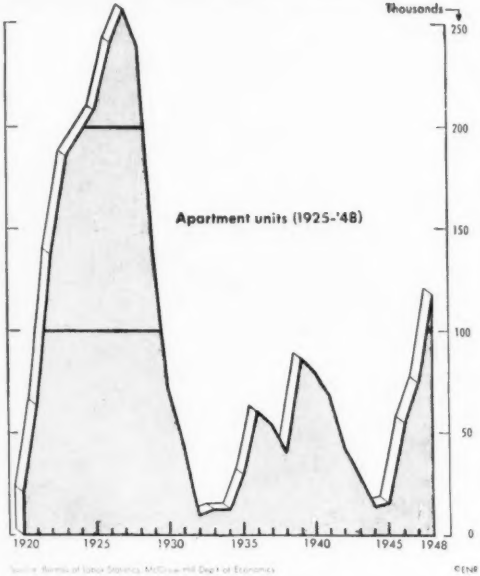
CONSTRUCTION TRENDS



Multi-family Housing Seen A Cushion for Construction

How will large-scale public housing affect construction?

Federal Housing Administrator Raymond Foley plans to get a flying start on the U. S.'s new housing program. He hopes to get 50,000 public housing units started in the first year of the six-year program which calls for 810,000 public-house units.

The question is: How will Mr. Foley's job affect the market for private construction?

The details in the answer may not be clear. But the construction industry will feel the effects of the public program. And, probably, construction stands to get a substantial boost because:

1. The federal program calls for about 135,000 units a year. They will be apartments, primarily, and the United States has not built that many units in multi-family dwellings in any year since 1929. In fact, that is more than the total of all housing units started in each of the years, 1932, '33, and '34—as the chart above shows. The federal program will provide a backlog of work for homebuilding that will help substantially in stabilizing the industry if business declines.

2. Public housing probably will compete with some private apartment building—but private construction may actually gain more in the long run than it loses as a result of the federal program.

The number of privately-financed apartments being built now for rental to low-income families is small. The insurance companies that were building on a large scale for medium-income groups at the end of the war generally are now out of the market. They are waiting for costs to come down. Other builders on the whole are aiming at well-heeled tenants.

The federal program will only indirectly affect new home construction. The great majority of all home-building is in one-family homes outside of the cities. In 1948 something more than 800,000 families paid a median average price of about $8,000 for new homes. Most of them are in income groups that would not be eligible for public housing. Possibly a small fraction of those people would have chosen to move into a federally-financed apartment in their neighborhood—if there was one open. But their numbers would hardly make a dent in the total market for one and two-family houses.

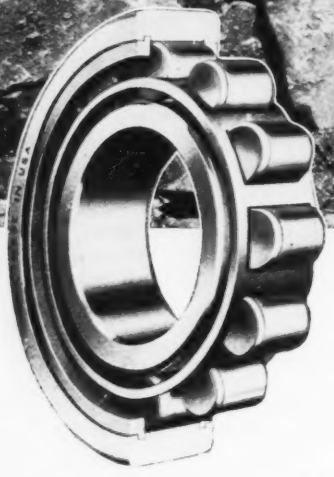
In short, public housing is aimed at a market that privately-financed builders in general cannot touch under today's conditions.

Over the years the new housing program may actually broaden the construction market. Slum clearance will remove tenements now blighting entire neighborhoods. Public housing, with its comparatively high standards, will look good compared to much substandard city housing. Once the great housing shortage is past, that may lead to rebuilding of entire neighborhoods. Where the new housing goes in, too, there will be a demand for new schools, new commercial buildings, new streets.

It is impossible to say how much private building will be stopped because of competition from public. It probably won't be much, however, because there is a wide gap between public housing rents and the rents private builders must ask. Then, too, the entire public program is small in comparison to the demand for that kind of housing. In New York City alone the Citizen's Housing and Planning Council estimates there will be need for more than 600,000 family dwelling units. New York, if it is lucky, will get only about 60,000 houses under the federal program.

So—as the picture adds up—construction stands to gain a lot with the federal program. In any case, the program provides the industry with a backlog of work that will cushion the effects of a setback in business.

They laugh at loads



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HYATT ROLLER BEARINGS

Cleveland Building Code

With the adoption of its new building code on June 27, Cleveland served notice that both new construction and alterations of existing buildings must conform to requirements designed to promote greater safety and better health and welfare for its million inhabitants. Compiled at a cost not exceeding that of one good two-family house ($30,000), the new code is expected to provide a stimulus for both industrial construction and housing—much of which has been delayed pending the outcome of the two-year battle among engineers, builders, manufacturers and union labor to secure a modern code.

Containing over 800 pages, the code leaves little doubt as to the quality of materials and workmanship required. Conventional materials are referenced to approved national standards for simplicity, and ease in keeping the code up-to-date. New materials will be judged on their merits by an impartial five-man Board of Building Standards and Building Appeals, which will have jurisdiction of the code.

Granted thoughtful and understanding administration, the new code should provide Cleveland with a set of building regulations that closely follow progressive thinking in this important field. As such, they will bear study by other cities burdened with building codes that are restrictive and archaic.

Road Needs Emphasized

The Public Roads Administration's report to Congress on the needs of the National Interstate Highway System serves to emphasize again the great amount of work that must be done to bring the nation's roads up to current requirements. That system is the basic system connecting all the principal industrial centers and 182 of the 199 cities of 50,000 population or over. Although it is 37,800 miles long, or only 1 percent of the total of all roads and streets, it carries 20 percent of all rural traffic and 10 percent of all city traffic. Yet only 1,900 miles of the 31,831 miles in the rural part of the system are up to recommended standards, and all but 398 miles of the 5969-mile urban sections are substandard. The bridges are in even worse state—only 483 of the total of 10,050 are completely adequate.

The cost of doing this work on the National Interstate Highway System is put at $11,266,000,000 at 1948 prices, divided about equally between urban and rural work. If it were to be spread over 20 years, the annual investment would be $500,000,000, yet only about $75,000,000 in federal aid—or a total of $150,000,000 with state matching funds—is being spent on this part of the federal-aid system at the present time. Which means that more mileage will be obsolete before it is rebuilt at the current rate.

This is a serious situation. The PRA has some suggestions as to how to meet it by stepping up the annual rate of highway rebuilding. It recommends that Congress continue the regular federal aid at not less than the current rate and that it add $75,000,000 to the authorization, which would be earmarked for the national system. To facilitate a higher rate of spending by the states, the PRA recommends that the normal 50 percent rate of matching federal funds might be reduced for work on the national system. States that borrow to speed their program would be allowed federal aid for bond retirement in later years.

When the backward condition of the nation's basic highway system is considered in connection with the growing demand for federal money for local rural roads, it becomes obvious that some fresh thinking should be applied to the highway financing problem. Congress is not in a frame of mind to increase any federal expenditures materially, hence it would appear that initiative should come from the states. Possibly North Carolina's decision to authorize a big bond issue to clean up the local road situation may indicate a way to attack the problem. If the states show willingness to take care of local roads, Congress may be more liberal toward the national system.

An Aid to Research

Passage of an act to set up a National Science Foundation seems assured. The Priest bill, now before the House of Representatives, with approval of the Interstate Commerce Committee (ENR June 23, p. 38), meets the President's objection to earlier legislation. It provides contract authority for sponsoring $12,500,000 in research work the first year and a gradual increase to $25,000,000. Scholarships and graduate fellowships totaling $2,500,000 also are authorized.

When approved, this legislation should do much to aid college research, especially in the smaller schools which in the past have not had adequate funds for research or for fellowships involving special laboratory or field studies. It also should help smaller manufacturing concerns in improving existing products or developing new ones. An aggressive campaign on the part of the directors of college research laboratories should be productive of much interesting work from this field and could gain new friends for the schools.

Under proper direction, the scholarship provisions of the proposed legislation should do much toward keeping up the supply of trained research men. In the past, the attitude of this nation toward that matter was entirely too casual, as we learned in the war years.

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In addition, in daytime or at night, the driver is immediately conscious of a distinct hum or whine should he veer out of lane and ride on the corrugated surface.

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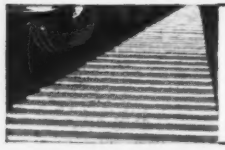

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ENGINEERING NEWS-RECORD

JULY 21, 1949 VOL. 143 NO. 3

Mexico in development is theme of ASCE meeting

Summer convention in Mexico City hears Mexican engineers describe extensive construction program to raise living standards for our neighbors to the south

By Waldo G. Bowman

Mexico, a semi-feudal country up to the time of its revolution in 1910, is emerging from a period of painfully slow growth into an era of relatively dynamic development.

Members of the American Society of Civil Engineers attending the summer convention of the society in Mexico City, July 13-15, had the details of this development spelled out to them in papers delivered by Mexican engineers at the several technical sessions. Water resources, foundations problems and highways were the subjects covered. A total of 578 persons registered—of whom 185 were ASCE members.

The ASCE last met in Mexico City in 1907. This second visit outside the U. S. was a joint venture with five Mexican groups—Asociación de Ingenieros y Arquitectos de México, Colegio Ingenieros Civiles de Mexico, Centro Nacional de Ingenieros, Asociación Mexicana de Contraistas, and Colegio de Ingenieros Militares.

An unmistakable air of friendship and mutual understanding of interests pervaded the convention, both in its technical sessions and during the several elaborate social activities arranged by the Mexican engineers and government officials. The convention sessions were begun in the Palace of Fine Arts, and were continued in the Hotel del Prado. Dual language difficulties were overcome by translations, and by preprinted papers in both Spanish and English. ASCE President Franklin Thomas gave his opening address in both languages.

Considerably more than half the papers presented related to the utilization of Mexico's water resources, a subject whose international aspects were introduced in a paper by L. M. Lawson, U. S. Commissioner on the International Boundary and Water Commission. This body has worked harmoniously and effectively in rectifying the Rio Grande and is now in the midst of a dam-building program. A dam at Morelos is half-finished (ENR July 7, p. 58) and bids will soon be taken for Falcon Dam, about 75 miles from Laredo. Another dam upstream in the Big Bend district is under study.

The fundamentals of Mexico's water problem were outlined by Adolfo Orive Alba, secretary of the Ministry of Hydraulic Resources: Only 7 percent of the cultivable land does not require irrigation, and much of this needs to be drained because it is in low tropical areas. There are about 20 million acres that can be irrigated, but even when this is done, there will only be one acre per person as compared with three acres per person in the U. S. About 5,000,000 acres are now irrigated, of which 2,000,000 have been added since 1926.

Present stepped-up development in Mexico stems from President Aleman's two-point program:

1) to achieve a maximum increase in agriculture consistent with available water; and

2) to develop industries that fit into the habits and the products of the people.

To implement this program, the Ministry of Hydraulic Resources was formed in December, 1946, to develop multi-purpose dam projects, to drain land and to build water supply and sewerage systems. The six-year irrigation program that was laid out and financed is larger than the total U. S. accomplishment in the 25 years following establishment of the Bureau of Reclamation in 1902.

The largest current project is Obregon Dam, an earth-fill of 12,000,000 cubic yards. Also in cooperation with the U. S. Coordinator of Inter-American Affairs, modern sewage and water supply facilities have been established in 25 "tourist" towns.

Mexican TVA

Senor Orive also called attention to two vast regional development schemes, designed to open up areas to agriculture and healthful living. One of these is in the Papaloapan Valley near Vera Cruz on the Gulf Coast; the other, known as the Tehauntepec project, is across the isthmus on the Pacific side. Drainage, flood control and storage dams are involved. Of the five dams planned in the Papaloapan work, the President Aleman Dam is underway; with five

(Continued on page 28)

COSTS DIVE 28 PERCENT—Low bids received on New York City Housing Authority's Farragut Houses in Brooklyn are 28 percent below similar work let six months ago. The bid price for foundation and superstructure was 63¢ per cu. ft. for seven of the ultimate ten 14-story, five-wing structures. Fred N. Severud was structural engineer and Fellheimer, Wagner and Vollmer were architects.

Study develops inspection cost cuts

Milwaukee's building inspection service can be improved and its taxpayers can be saved $125,000 yearly—by consolidating inspections.

At least, that's the conclusion of two city officials who have studied the problem. They felt sure enough of their findings to turn them over to the Board of Estimates in a 100-page report. Consideration of the 65 recommendations is expected this fall, when the budget will be prepared.

Robert C. Garnier, classification examiner for the City Service Commission, and George C. Saffran, budget supervisor, prepared the report. They found that as many as 10 inspectors make routine visits to some types of buildings—perhaps on the same day. Such duplication, they discovered, arises primarily in fire prevention, public health, sanitation, building and safety engineering inspections.

As a result, they recommended a consolidation of inspection duties which, in addition to saving money and giving better service, they say will confuse the public less and permit the job to be done by a smaller staff.

Specific categories of buildings, the report recommends, should be assigned the fire and health departments, with each assuming the duties of the other in the buildings assigned them. Building inspectors they would limit to new construction or major alterations; five divisions—each with its own inspectors—in the building inspector's office they would combine into one. They would reduce from 34 to 19 the number of building inspectors and from five to one the inspection supervisors. Building, electrical and plumbing inspections for one and two-family homes they'd combine, and they'd have one central office—rather than seven scattered ones—issue all types of construction permits.

The report also suggests experiments to determine whether one man can handle satisfactorily the electric, plumbing and building inspections of residential units.

The report grew out of detailed audits with the inspectors themselves. Many of its recommendations originated from suggestions made by department heads whose organizations were being studied. One of the early discoveries was the extent to which such studies spread into allied fields, some of them into other governmental jurisdictions, such as county or state. One section of the report was devoted to this; another is concerned with the relationship between periodic maintenance building inspections and inspections for license purposes. The survey also draws support from replies to questionnaires which were sent to 38 U. S. cities.

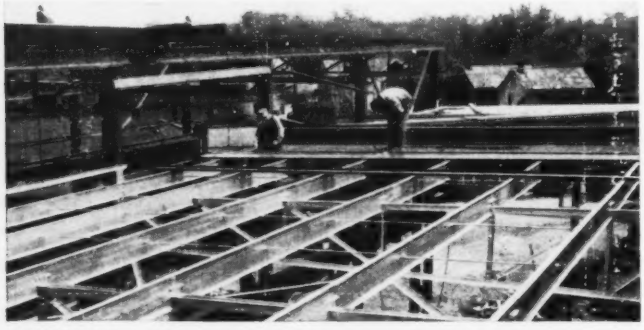
Producers' Council OK's code revision

The program for revision of building codes by the Building Officials Conference of America and the Building Officials Foundation (ENR June 23, p. 29) has the blessing of the Producers' Council.

C. M. Mortensen, executive secretary of the Producers' Council said last week the revised program of BOF calls for immediate completion of a Basic Building Code. Opportunity will be given to all manufacturers and distributors of building materials or equipment to participate in public hearings before the code is finally published.

BOCA will formulate the code and an Abridged Code for smaller cities. No further distribution of the Basic Code will be made before it is finally adopted. And provision will be made for future revision of the code which will be acceptable to organizations allied with the building industry. Such changes will require final approval of BOCA.

Under the new program, BOF will develop an accredited list of acceptable testing laboratories and uniform testing procedures. It will attempt to eliminate duplicate testing, and will disseminate test results. The recommendation has been made that BOF's technical activities be made self-supporting by the establishment of fees for BOF examination of test results. Appeals from findings of BOF consultants will be possible to a three-man committee of qualified building officials who are BOCA members.



SAVINGS OF A CENT A POUND were reported in the construction of this industrial building for the Standard Transformer Co., at Warren, O. The savings come from the use of lightweight steel beams for roof purlins. They are bolted into final position as a part of a continually progressing erection system. Sag rods, of ½-in. steel rounds are installed and bolted, after final erection, for additional lateral stability. A 10-in. purlin, 16 ft. long, weighs 150 lbs., but will bear safely a load of nearly three tons if the weight is distributed evenly. (Jones & Laughlin Photo).

New York Life, Chicago share slum redevelopment

Chicago and the New York Life Insurance Co. are working together on a slum redevelopment project which will yield 1,400 medium rental apartments in the heart of the South Side.

The city's Land Clearance Commission will acquire and clear a site fronting on Lake Michigan from East 31st to East 33rd streets, plus additional land for shopping facilities. The land will be sold to New York Life "at a realistic value for vacant areas," but with no tax concessions for the land or improvement. The city will build a school and a park.

Corpus Christi's tallest to be started in fall

Corpus Christi's tallest office building—15 stories—will be started by October. Financed by a $3,000,000 Prudential Insurance Co., loan, the structure will be of concrete and masonry construction, with more than 137,000 sq. ft. of floor space. Walter W. Ahlschlager, Dallas, is architect.

Senate gets private housing measure designed to aid builders in financing

Leaders plan to push bill through this session of Congress—Fulfilling Administration's promise to supplement public housing

Congress last week got a new private housing bill that wraps up most of the assistance measures previously introduced—and adds a few touches of its own. Senator Sparkman presented the bill on behalf of the Banking Committee in the upper house. The measure represents the consensus of committee thinking on what the government can do to maintain and improve the volume of construction of privately financed housing.

Congressional leaders plan to act on the bill before the session adjourns. As drafted, the roundup measure carries out the Administration's intention to complete its housing program with a separate bill for privately financed dwellings. Part One of the program—the public housing-slum clearance legislation (ENR July 7, p. 49)—became law last week, with signing by the President.

Senator Sparkman's bill would authorize a number of financing aids previously endorsed by the Administration. Essentially, those aids would liberalize FHA insurance for mortgages on lower-cost houses (including three- and four-bedroom dwellings), would authorize direct government loans to housing cooperatives, and would broaden the market for sale of mortgages to the Federal National Mortgage Association, RFC subsidiary.

With these stimulants—and others like them—government housing officials hope to sustain a level of construction that has shown 451,000 new houses started in the first half of this year. Included in that figure are 100,000 housing starts in the month of June. After starting slowly in the first months of the year, the increasing volume indicates that 1949 will achieve the total of 875,000 new housing starts predicted last fall by BLS. In 1948, the total was 931,000.

Expanded capacity for materials production and an enlarged labor force are adequate to take care of this volume of housing starts, in addition to units that will be built under the new public housing law, according to government officials and members of Congress who have studied the problem. The public housing law sets a schedule of 135,000 units a year for six years, with discretionary power given the President to increase the number in any one year to 200,000 units if economic conditions warrant. Federal housing officials want to see no diminution of privately-financed housing during the years when public housing is being built.

In the new Sparkman bill, the secondary market for mortgages in FNMA is broadened by permitting lenders to sell certain mortgages without limitation to this agency. Under 1948 law, sales are restricted to 50 percent of the G. I.-guaranteed and FHA-insured mortgages in each lender's portfolio. The proposed bill would exempt four classes of loans from this limitation: Mortgages on lower-priced housing, rental housing, housing cooperatives, and G. I.-guaranteed paper. Dwellings covered by G. I. mortgages would have to measure up to VA construction standards.

As a further stimulus for housing cooperatives, which have been slow getting started, the bill sets up a $1 billion program of direct loans to housing projects under cooperative ownership and to other nonprofit housing corporations. Cooperatives made up entirely of World War II veterans could get 100 percent insured loans for 40 years at 4 percent interest, up to $9,000 per dwelling, or $2,000 per room.

For G. I. loans, the bill would increase the guarantee to 60 percent—as compared with the present 50 percent—on loans up to $7,500. The present limit is $4,000. Interest would be set at 4 percent, with the present provision eliminated for 4½ percent on a second mortgage.

Move to revive arbitration board

Steps are being taken by the AFL Building and Construction Trades Department to preserve the industry's Joint Board for settling jurisdictional disputes without work stoppages.

A poll of the 19 participating unions taken by the AFL on the question of retaining the Joint Board has disclosed a change of heart among most of the unions since the Building Trades executive board voted in Cleveland last May to terminate the year-old plan on July 1. (ENR May 26, p. 33).

A meeting of the joint negotiating committee representing both contractors and the AFL is scheduled for Aug. 4. At that time, amendments to the plan proposed by both sides will also be considered if it is agreed to continue the arrangement.

The Associated General Contractors' executive committee, meeting in Chicago last week, authorized its committee to negotiate a continuance of the Joint Board with certain "safeguards." AGC wants assurance that any plan for settling jurisdictional disputes will be binding on all AFL building trades unions.

The eight specialty contractors participating in the plan met this week. H. R. Cole, executive secretary of the Tile Contractors' Association, said all the contractors wanted stronger compliance by the unions with the provisions of the plan. They also feel, he said, that the nine-man board of trustees should have more authority to make spot decisions.

Three meetings have been held by the joint negotiating committee since the AFL Building Trades decided at its convention in November to request changes in the plan. According to the industry, the unions have been very vague about what changes they want. At the convention, the AFL said it wanted to curb the right of contractors to bring disputes to the Joint Board.

Martin P. Durkin, president of the Plumbers Union, has proposed two changes which he says will be considered by the joint negotiating committee, of which he is a member. He would (1) permit unions involved in a particular jurisdictional dispute and contractors employing those unions to sit on the panel for that dispute, but leave the decision up to the impartial chairman, and (2) reconstitute the board of trustees so that unions employed by specialty contractors and those employed by general contractors will be equally represented.

The results of the Aug. 4 meeting will be considered by the Building Trades executive board at its meeting Aug. 12 in Toronto.

Reconsideration of the union decision to junk the jurisdictional disputes settling machinery was precipitated by the failure of Congress to repeal the Taft-Hartley Law. If the Taft-Hartley Law remains as is, which now seems probable for the next two years, contractors will be backed by the National Labor Relations Board in their right to make work assignments.

New twist on Spence bill emphasizes employment rather than production

Rewritten Economic Expansion Act of 1949 jibes with President's economic prescription and would provide for creating employment

Close upon President Truman's economic report (ENR July 14, p. 25) Senator Murray and his group of co-sponsors are planning introduction of their long-discussed Economic Expansion Act of 1949. The bill has been rewritten to bring it into line with the President's economic prescription. Its purpose has been changed from expansion of productive capacity to preparation of plans for creating employment.

The original version (Spence bill) grew out of the idea that more capacity was needed to take care of shortages—present and future. In its revised form, the bill proposes to build up a reservoir of plans for state and local public works. It would provide some $500 million in loans or advances to state and local governments for advance planning of public works. The objective would be to maintain a shelf of up-to-date plans for projects with a total estimated construction cost of about $15 billion. This sum is more than twice the volume estimated as feasible by FWA officials—within the last year—for an active reservoir of state and local public works plans.

Grants to states

Further, the bill would authorize grants to the states and to their agencies and political subdivisions for developing overall state or local public works plans. Such overall plans would embrace the long-range needs for public works projects of all kinds, both urban and rural.

Beyond the public works plans, the bill aims to prod private business to expand—particularly in under-developed or backward industrial areas. It would offer incentives to private investors to enlarge the capacity of certain basic industries—steel, iron ore, non-ferrous metals, synthetic liquid fuels, electric power, fertilizers, timber and newsprint.

Credit terms eased

Investment in these basic industries would be encouraged by easy government credit and by accelerated amortization in five years. The bill also would protect investors in large measure against loss by offering a plan to insure up to 90 percent of investment in public or private developmental organizations. These organizations—state or regional in scope—would be empowered to make loans that they determined to be necessary for the economic development of an area.

Objective of the bill, according to the sponsors, is to "quarantine unemployment." They regard it as "preventive economic medicine." In an effort to get it through Congress, they have modified its terms to win the support of a large body of legislators. As originally drafted, the bill had practically no chance of passage. In its toned-down form—with emphasis on planning to avert unemployment—its prospects look brighter for consideration at a later session of Congress, if the economic trend continues downward.

Four firms share contract to build Toronto subway

Toronto's long-planned subway—the Yonge Street Rapid Transit line—takes the first step toward reality in September when work on the first two sections will begin.

Three United States constructors and a Toronto firm shared the initial contract of $10,000,000 which was awarded last week. The price was below budget estimates by the Toronto Transportation Commission, but is 20 percent above TTC's 1944 estimate.

Successful bidders were C. A. Pitts, General Contractor Ltd., of Toronto; Arthur A. Johnson Corp., Long Island City, N. Y.; Johnson, Drake & Piper, Inc., Minneapolis; and B. Perini & Sons, Inc., Framingham, Mass.

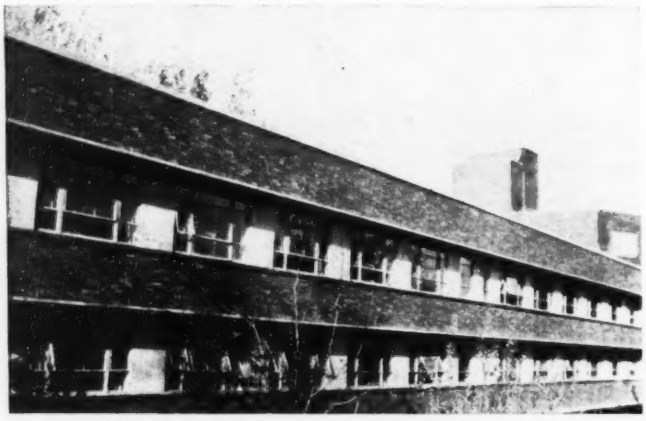
A 4.5-mi. open cut subway will be the next phase of the project. Total cost is estimated at $70,000,000.

USBR saves $500,000 with tunnel power line

Two-way use is to be made of the 13-mi. Alva B. Adams irrigation tunnel under the continental divide in Colorado. Water will travel east through the 9 ft., 9 in. bore, and electric power will flow west through the same tunnel. Both will serve elements of the Colorado-Big Thompson project.

The 69 kv. cable—encased in a gas filled pipe suspended from the roof—will cost $500,000 less than an outdoor transmission line across the divide. The gas-filled pipe is relied upon to keep out moisture.

Reclamation Commissioner Michael Straus conceded that there's a "calculated risk" involved. But he said study indicated that the risk is no greater than that in maintaining a tower transmission line through an almost inaccessible area swept by storms and severe icing conditions.



BUILT-IN DE-FROSTING keeps window overhangs free of ice at the Deaconess Hospital, Wenatchee, Wash. Electrical heating cables are embedded in the seven concrete shades, each 4 ft. wide and 140 ft. long, which overhang the rows of windows. The electrical heating is thermostatically turned on, manually turned off when the ledge is de-iced. Because of heat transmitted from the building, this installation gets by with an electrical application of six watts per sq. ft. for temperatures down to 10 deg. below zero. For de-icing drives or walks, 25 to 30 watts per sq. ft. is recommended.

Group would restore 15% Interior cut

Two significant facts stood out in the Senate Appropriations Committee report last week on Interior Department funds for fiscal 1950.

Money-wise, the important feature was the committee's decision to restore House-approved cuts in construction funds for continuing contracts of the Bureau of Reclamation; the committee accepted the 15 percent reduction only for new contracts to be awarded later. This decision upped Reclamation's construction money some $35,000,000 above the House figure of $296 million.

Policy-wise, the committee made an even more significant determination. It knocked out several Reclamation requests for transmission lines in California, Colorado and Idaho—and for the Delta steam plant to firm up Central Valley power. These deletions, it said, were made on the assumption—backed up by testimony during the hearings—that privately owned utility companies would make satisfactory contracts with Interior for distribution of power from the federal government's generating plants.

By its action the committee showed that it was not yet ready to go along with the Administration's plan to build transmission systems for delivery of public power. As a model for the proposed contracts with utility companies, the report pointed to an agreement that has been in effect for more than a year—between the Texas Power & Light Co. and the Southwestern Power Administration, a constituent agency of the Interior Department.

Under the Texas contract, the private utility transmits power from Denison Dam to the municipalities, cooperatives and other wholesale customers of Southwestern Power Administration. Some 70 percent of Denison Power is delivered to these consumers. Texas Power & Light guarantees 24-hr. delivery, using its own steam plants to firm up the supply. In return for its service, it gets the remaining Denison power at the established government price, lower in cost than its own steam-generated power.

In its appraisal of construction cuts, the committee followed much the same logic it had applied in considering similar reductions made by the House in the Army civil functions bill. That measure, with most of the cuts restored, was passed by the Senate May 20. It has been in conference ever since. House-Senate conferees have not come to final agreement.

As in the Army civil functions bill, the House lopped 15 percent off all construction appropriations for Interior and directed the department to come back for deficiencies if it ran out of money. In both cases, the Senate committee rejected this procedure. Instead, it made specific appropriations for individual construction projects on a basis believed adequate to cover the year's costs.

To new major construction contracts—totaling $60,000,000 in the budget estimate—the committee applied generally the 15 percent reduction. It pointed out that these contracts have not yet been awarded. If bid prices should not decrease by 15 percent, it said, the bureau can reduce the number or size of contract awards to keep within the limit of funds appropriated.

Big money appropriations approved by the committee include: Missouri River Basin, $81,668,560 (and contract authority for $6,364,000); Columbia Basin Project, $70,034,000; Central Valley Project, $60,789,890; Davis Dam, $37,504,860; Hungry Horse, $23,786,250; and Colorado-Big Thompson Project, $20,172,750.

Total Interior appropriations recommended by the committee come to more than $590 million, an increase of $54,000,000 above the House-passed bill.

Of the committee's total, the Bureau of Reclamation would get nearly $355 million in cash, plus contract authorizations exceeding $10,000,000.

A BIG LOGGING JOB—one of Montana's largest—which will clear 25,000 acres for the Reclamation Bureau's Hungry Horse Dam, swings into high gear on the South Fork of the Flathead River. Within two years, loggers will remove 70,000,000 b. ft. of timber preparatory to the storage of 3,500,000 acre-ft. of water behind the 520-ft. dam. So far, operators are getting better than 90 percent recovery on fir and larch logs being cut into railroad ties. Slabs from the tie logs are cut into 2x4's and 1x4's at resaw plants.

Bids still over estimates on Chesapeake Bay Bridge

Bids opened last week on one of eight substructure contracts for the Chesapeake Bay bridge were from 39 to 56 percent over costs estimated by the J. E. Greiner Company, consultant engineers.

Merritt-Chapman & Scott Corp., of New York, bid low—$4,697,060 on the contract covering 26 of the 51 pier foundations. The estimate was $3,373,979. J. Rich Steers, Inc., and the Frederick Snare Corp. also submitted bids on the work.

This was the second opening in a series of eight resorted to by the Maryland State Roads Commission after receiving a lone low bid for the entire project which exceeded estimates by $10,000,000 last March (ENR Mar. 31, p. 29). The commission rejected that bid and decided to readvertise the work, broken down to eight parts.

The eighth contract is due to be bid on Aug. 9.

New Hudson River bridge gets N. Y. State approval

Bertram D. Tallamy, State Superintendent of Public Works, has given the New York State Bridge Authority approval for the proposed $14,000,000 Kingston-Rhinecliff suspension crossing of the Hudson River.

He declared the structure to be in the public interest and thus gave the official green light to detailed planning and design. In reviewing the preliminary report made for the bridge authority in 1947 he urged that further studies be made to determine the best possible approach locations.

The 1,700-ft. crossing would be a toll bridge, built and operated by the bridge authority which now operates three Hudson River crossings—Bear Mountain Bridge, the Mid-Hudson Bridge at Poughkeepsie and Rip Van Winkle Bridge from Hudson to Catskill. The Kingston-Rhinecliff crossing is expected to provide the traffic relief urgently needed on these three bridges.

ASCE hears Mexico's growth traced

(Continued from page 23)

million acre-ft. of storage, it will be the largest in Central or South America.

The other principal work on the project so far has been Papaloapan channel rectification. Since the lower reaches of the river have no appreciable gradient, a program of cutoffs was initiated a year ago, and seven have been completed to shorten the river by 34 miles. In describing the work, Reynaldo Schega C., project engineer, told how the lower-most cutoff pilot channel was dug first, after which those upstream were attacked in order. By this arrangement the widening of the cutoffs by current is speeded up. Each pilot channel must be completed between flood seasons and, since the available contractors have only a few pieces of equipment, each job has been difficult.

Other papers on Mexican hydrology and irrigation were contributed by Antonio Rodriguez L., director of water development of the Ministry of Hydraulic Resources and by Andres Garcia Quintero, director of the department of hydrology of the Ministry. General papers on irrigation were delivered by W. H. Nalder of the U. S. Bureau of Reclamation, on design, and by Ramond A. Hill, consulting engineer, Los Angeles, on operations and maintenance.

As key structures in an irrigation system, dams have been built in Mexico as rapidly as funds have permitted. Since 1926, when the program started, 43 dams over 50 ft. high have been completed or are underway, said Jose Vicente Orozco, chief engineer of irrigation of the Ministry of Hydraulic Resources. They provide storage of 10.85 million acre-ft., serve 1.8 million acres of land and will permit generation of 387 million kwh. of hydro-power.

Broadened road program

Of these 43 dams, 27 are earth, six are rockfill, five are gravity-section concrete and five are special concrete or masonry structures. The preponderance of earth and rockfill types results from the prevalence of poor foundation conditions. Other influencing factors are scarcity of cement, poor roads, and low labor productivity.

In accordance with the new development policy, all recent Mexican dams incorporate facilities to develop hydro power.

Complementary not only to irrigation and hydro power but to industrial development in raising Mexico's living standards are roads, and current activities were described to support this fact. Contributing to a description and evaluation of Mexico's road plans were Romulo O'Farrill, president, Asociacion Mexicana de Caminos; Armando Salinas, director-general of highways; Rene Etcherrea, chief, bureau of rural roads; and Jose Rodriquez Cavo, sub-director general of highways.

In roads, as in other forms of development, the modern Mexican expansion began with the 1910 revolutions, but did not make serious headway until 1925. By now, however, there are 13,000 miles in the road net of which 5,700 are in the federal system, which contains some 2,200 miles of asphalt, 2,500 of gravel and 1,000 miles of earth roads. As a measure of the effort, 10 million pesos were spent in 1926 in contrast to 300 million this year.

Several transcontinental highways are underway, and by 1952 these trunk lines are all scheduled for completion. Included in this program is completion this year of the final section of the Pan-American highway in Mexico. About 40 miles that will take the road to the Guatemalan border are now under construction.

So necessary were main roads that secondary and rural roads have received little attention up to the present. In line with the higher living standard objective, however, a Department of Secondary Roads was inaugurated in May, 1947. Some 62,500 miles of such roads are needed.

Progress has already been made under a plan whereby local residents contribute of their time and money to build these rural roads. Aided by an initial budget of 2,000,000 pesos, 280 miles have been built. These cost an average of 24,000 pesos per mile, of which the federal department supplied only 4,450 pesos.

On one road in the state of Oaxaca 3,336 men volunteered to work three days each month so that a crew of 300 men was available every day. School teachers have been instructed to act as supervisors in other cases. In a third case, pineapple producers contributed 200,000 pesos toward a road that will make it possible to transport more produce to market. In all of these ways, Mexico is reaching out to its neglected communities with transport facilities.

Aiding greatly in this work is the recently formed Asociación Mexicana de Caminos, an affiliate of the International Road Federation. Formed to promote roads as a vital necessity of a rising standard of living, the Asociación is supplementing the work of the state in every way possible. One effec-

ASCE directors oppose engineer bids

The Board of Direction of the American Society of Civil Engineers, meeting for two days prior to the Mexico City convention, last week transacted its usual full schedule of business. One of the most important actions was a declaration that, "It is the sense of the Board of Direction that the Board is unalterably opposed to competitive bidding by professional engineers on a price basis for furnishing professional engineering services."

Even more important was the action directing the Committee on Professional Conduct to prepare a revision of the Code of Ethics which will effectively prohibit such bidding in the future. The practice has never been definitely prohibited in the code although it has been regarded as reprehensible and undesirable.

The Board also approved a draft of a revised constitution that improves on the present one without introducing any radical changes in the society's organization. The draft will come up again next January after which it will be submitted to the membership.

Since the new constitution provides for only three instead of four meetings per year, with the annual convention in New York in October instead of January, the Board approved such a schedule for 1951, on the assumption that the new constitution will be adopted. If it is not, a fourth meeting will be held to comply with the existing requirements.

Other significant actions included approval of a large local section conference at the Washington meeting in October; adoption of an interim report on engineering fees; a decision to have the Committee on Public Engineering Practice and Policy formulate a society policy respecting assignment of engineers on the public payroll to work in foreign countries; and approval of the idea of combining into an International Federation of Engineering Societies, the so-called London Conference group from Western European nations and the Pan American Federation of Engineering Societies, which was organized this month at a conference in Brazil.

tive method has been the assembling of a fund of five to seven million pesos, contributed by its members, to be applied to the rural road program.

Building foundations

The unusual soil and foundation conditions with which Mexican engineers have to deal is nowhere more apparent than in Mexico City, formerly the site of ancient lakes, with sediments and volcanic deposits extending to depths well over 600 ft. Papers by Leonardo Zeevaert, consulting engineer, Mexico City, and Pedro Albin, Jr., construction engineer on the biggest office building in Mexico City, "La Latino Americana," described some of the foundation problems that must be solved.

The soil is a soft volcanic clay interbedded with sand lenses and solidified to depths of about 115 ft. by an overburden of 30 ft. of fill material. Water content up to 400 percent characterizes the clay, whose properties are often changed by wells from which water is pumped for domestic use.

Mr. Zeevaert pointed out that most buildings are on mat foundations resting on the 30 ft. of overburden. Large buildings are supported on piles going down to one of the sand layers, usually near the 100 ft. level. In either case, care must be taken not to exceed the "yield point" of the clay, which is perfectly elastic until loaded too heavily. Even loads of half a ton per square foot have caused settlements of several feet in a few years. The clay can be protected from "breakdown" by reducing the overburden load by excavation, often carried out in quantities that will partially compensate for the loads that will be applied by the building itself.

In connection with compensated excavation, Mr. Albin pointed out that the work has to be done carefully and that excavations not be carried too deep. Moreover, loads should be put back on the clay soil quickly after the overburden is removed, else serious upheaval will occur.

Typical of the phenomenon of clay "breakdown" cited by Mr. Zeevaert, Mr. Albin called attention to the Palace of Fine Arts which because of excessive weight has loaded the clay beyond its yield point. The result is a settlement of the building of over 12 ft. Only the fact that it is founded on a very rigid mat foundation has saved this famous opera house from disastrous cracking.

In other cases buildings have been provided with foundations that do not settle, so that they are left "high and dry" by general settlement of the surrounding ground, which is going on at a rate of 1½ to 6 in. per year in various parts of the city. Contemplating such a situation for the new La Latino Americana Building, a proposal is being studied to mount the first floor on screw jacks that can be lowered and thus always keep the floor level at ground level.

This building is the first in Mexico to be founded on button-bottom concrete piles. With a point that is 17 in. in diameter, the piles will stress the sand layer at about 100 ft. depth to 35 kg. per square centimeter under a 50-ton load. This compares with a 60 kg. per sq. cm. stress for the usual 8-in. wood pile loaded to 20 tons. Pile driving on this building is nearing completion.

Two other papers bearing on Mexican problems related to subjects previously treated by the authors in articles in ENGINEERING NEWS-RECORD. These were "Passing Floodwaters over Earth and Rockfill Dams" by Andrew Weiss, chief of the consulting department of the Ministry of Hydraulic Resources; and "Mexico's Cement Technology" by Federico Barona de la O, engineer for the ministry.

NEW COURSE FOR THE COLORADO RIVER will be through this manmade channel when a 12-mi. cut between Needles and Topock, Cal., is completed. Here, a Reclamation Bureau hydraulic suction dredge works through a swamp on the river near Needles. Since January, it has progressed 1.5 mi., removing nearly 1,000,000 cu. yd. of material, with about 9,000,000 cu. yd. more to go before arrival at Topock in another year. Material is discharged through pipeline at right. The channel will be 300 ft. wide, 17 ft. deep, and will restore the river to a confined bed, relieving a flood threat at Needles.

California legislates on pollution abatement

Bill to create regional control boards goes to Gov. Warren for signature

The state of California has begun an all-out effort to control and abate pollution of its valuable underground and surface water supply.

The state legislature at its just-ended session enacted statutes to set up a 13-man state water pollution control board, and 9 regional boards to take charge of the ever-increasing problem.

Under the proposed setup, which Gov. Earl Warren is expected to sign, the regional boards will have actual control over individual pollution hazards, but final power will rest in the hands of the state board.

Local boards will be set up in regions of the state designated as North Coastal, San Francisco Bay, Central Coastal, Los Angeles, Santa Ana, San Diego, Central Valley, Lahontan, and the Colorado River Basin. Membership of each will include representatives of agriculture, industry, local government, and water supply organizations.

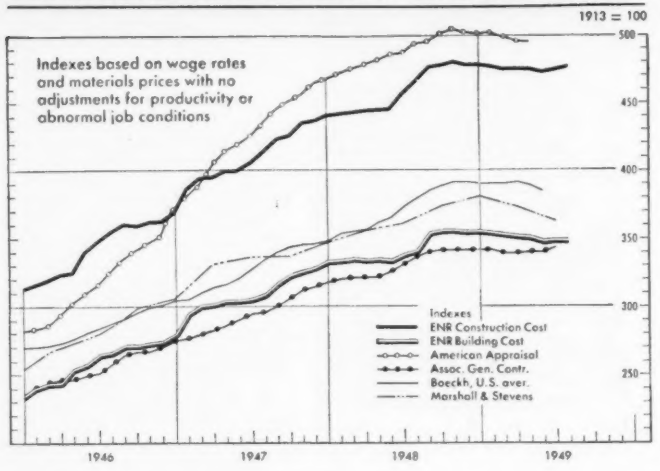
Power and duties of the regional boards will include:

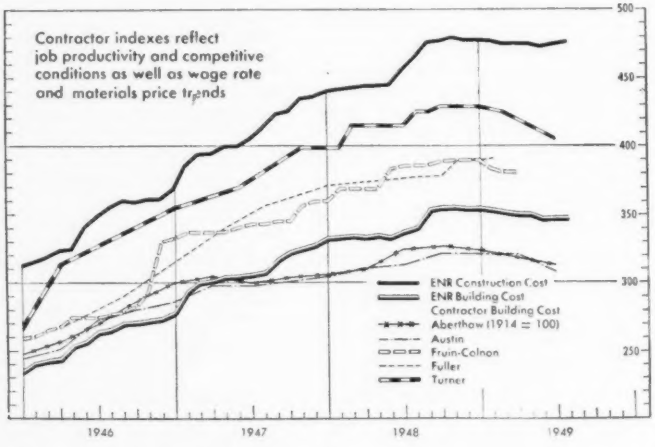
1. Coordinate abatement, prevention and control action.
2. Encourage self-policing waste disposal programs.
3. Formulate and adopt long-range plans and policies.
4. Report to the state board and appropriate local health officer any case of contamination in its region which is not being corrected.
5. Set up waste disposal requirements to be met by any new industry or establishment proposing to discharge sewage or industrial waste.

The state board will primarily be concerned with determination of statewide policy for control of water pollution, but may step in to take punitive or other action against polluters if the regional boards fail to succeed. It also will administer any state-wide program for financial assistance for water pollution control projects, and can administer state-wide research programs.

Membership of the state board, like the local boards, will be appointed by the governor. It will consist of the state directors of public health, natural resources and agriculture, the state engineer, and representatives of water production, agriculture industry, local government and public sewage disposal interests.

CONSTRUCTION BUSINESS





Construction costs leveling; six-month decline tapering off

Construction and building costs indexes illustrate two factors in the current costs picture:

1. The gentle 1949 decline is nearing its end, and

2. Construction selling prices, which had gone higher than wage or materials costs, have already come down more.

The trend is seen as a signal to construction buyers that further waiting in the hope of greater declines in cost will probably be fruitless.

These conclusions are evident in part from the two types of indexes grouped in the accompanying chart. The wage-price indexes (top chart) appear to have hit bottom in May—a fraction to two percent below their topping out values. The contractor indexes, reflecting job productivity and competitive conditions as well as wages and materials costs, are down from three to five percent through June.

The flattening out in July is not shown in full by the chart. The Fruin-Colnon index for St. Louis is down to 380 from its May-June value; the Smith, Hinchman & Grylls index (not charted) is 212 (1926 = 100), the same as for June; and Marshall & Stevens is 363 in July, same as June.

The ENR Construction Cost Index touched bottom at 472.1 in May, 8 points (1.6 percent) below the October 1948 high. Today it is back up to 477.5, due entirely to wage increases. ENR's Building Cost Index fell from 357 to 348.9 (2 percent) in the same period, and has now gained ½ point.

The construction cost index of the Associated General Contractors of America remained at 341 for five months from September to January of this year. In February and March it dropped to 339, and the June value is up to 343—highest since the war.

The E. H. Boeckh cost index for brick and concrete commercial or factory buildings stood at 391 in October and November, dropped to 390 for three months, and then rose again to 391 in March. Today it is back to roughly the August 1948 level, or 385.

The Turner index is down 20 points, or 5.3 percent, in June, due mainly to lower sub-contractor prices, including structural steel erected, which is down 15 to 20 percent in the New York area. The Austin index dropped 15 points, 4.4 percent, from March to June, primarily because of increased labor productivity. The Aberthaw industrial building cost index for New England is off 4.4 percent, 14.5 points, with credit to lower material prices and general softening in mechanical and other sub-trades.

Bidders triple, prices topple

A new system of letting highway contracts in Illinois is credited by Charles P. Casey, Director of Public Works and Buildings with attracting more bidders and lower bids on state highway lettings. A letter to the Associated General Contractors of Illinois, reported in THE BUILDER, July 1949 details the following results:

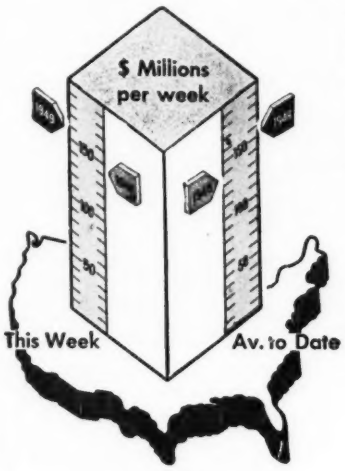
In spite of the facts that labor rates are 20 to 25 percent higher than in 1948 and freight is up 16 percent, unit prices bid on concrete pavement in the first four months of 1949 average $4.36 per sq. yd., 12 percent less than the '48 average. Earthmoving dropped to 43.9¢ or 9.5 percent. On bridge contracts erection and fabrication of structural steel came down 6 percent to a 13.5¢ average and reinforcing steel is down 6 percent.

In 1948 Illinois lettings attracted an average of 2.3 bidders. In 1949 an average of 6.5 contractors have bid on highway projects.

The new system of letting contracts in Illinois is to publish engineers' estimates when bids are called for, and to furnish contractors, before bids are opened, with the names of other contractors who have asked for bid specifications and proposal forms.

ENR INDEX NUMBERS

Index Base = 100		1913	1926
Construction Cost	July '49	477.46	229.56
Building Cost	July '49	349.39	188.87
Volume	June '49	326	143



Activity This Week

As reported to ENR (in millions of dollars)

Amount of Contracts let

Week of July 21 1949		Cumulative 1949 (29 wks.)	Cumulative 1948 (30 wks.)	% chge av.wk.
Federal	$15.5	$642.9	$588.4	+13
State & Mun.	78.0	1,722.6	1,414.8	+26
Total Public	$93.5	$2,365.5	$2,003.2	+22
Total Private	65.2	2,082.1	1,929.6	+12
U. S. Total	**$158.7**	**$4,447.6**	**$3,932.8**	**+17**

Contracts by type of work

	This Week	Cumulative 1949 (29 wks.)	Cumulative 1948 (30 wks.)	% chge av.wk.
Waterworks	$4.1	$93.2	$108.7	−11
Sewerage	4.9	140.4	123.3	+18
Bridges	6.1	189.1	167.9	+17
Highways	33.8	494.5	576.8	−11
Earthwork, Waterways	7.1	337.0	297.5	+17
Buildings, Public	29.7	928.2	605.7	+58
Industrial	20.9	545.7	569.5	−4
Commercial	37.5	1,307.1	1,114.2	+22
Unclassified	14.6	412.2	369.3	+15

NOTE: Minimum size projects included are: Waterworks and waterway projects, $28,000; other public works, $50,000; industrial buildings, $68,000; other buildings, $250,000.

New capital for construction

	Cumulative 1949 (29 wks.)	Cumulative 1948 (30 wks.)	% chge av.wk.
NON-FEDERAL	$3,013.1	$4,345.1	−28
Corporate Securities	1,425.4	1,282.7	+15
State and Municipal	1,587.7	1,076.2	+53
Federal-Aid Highway	....	427.3	....
FEDERAL	.....	1,558.9	....
Total Capital	**$3,013.1**	**$4,345.1**	**−28**

BIDS AND BIDDERS

One-Thousand Mile Gas Pipeline—The People's Gas, Light & Coke Co., Chicago, Ill., plans constructing 1,000-mile 30-in. welded joint natural gas pipe line from near Houston, Tex., to Joliet, Ill. It will traverse Texas, Louisiana, Arkansas, Missouri and Illinois, and will cost about $100 million.

Power Station—Ebasco Services, New York, N. Y. will build power station, near Forest City, Ark., for the Arkansas Power & Light Co., Pine Bluff, Ark., at about $15,000,000.

Saint Remi Street Tunnel—Department of Transportation, Ottawa, Ont., received low bid for vehicular tunnel, with pedestrian sidewalks under Lachine Canal from Atlas Constr. Co., Montreal. Estimated cost is $6,000,000.

Housing—City of Boston Housing Authority, plans Cathedral Housing Project to cost about $5,000,000. H. F. Kellogg, Boston, is architect, and Thomas Worcester, Inc., Boston, is engineer.

Road—Union Building & Construction Co., Passaic, has been awarded a $1,241,114 contract for improving road in Union County by the New Jersey State Highway Department, Trenton, N. J.

Apartment—Ritald Realty Corp., c/o Arthur Weiser, New York, N. Y., architect, will construct garden apartment, at Rego Park, N. Y., to cost about $1,326,000.

Horsetooth Supply Conduit—Western Paving & Constr. Co., Denver, Colo., was low bidder when bids were opened for constructing earthwork, tunnel and structures for Horsetooth Supply Conduit, Colorado-Big Thompson Project, Colo., at $1,383,400. Bureau of Reclamation is in charge.

Pediatric Building—Commissioners of the District of Columbia, Washington, D. C., received low bid for an addition at Gallinger Hospital, from Joseph F. Nebel, Washington, D. C., at $1,384,000.

Housing—Chicago Housing Authority, Chicago, Ill., awarded contract for city housing project, Site 6, to S. N. Nielsen Co., Chicago, Ill., at $1,029,000. The same contractor was low bidder for relocation housing, Site 2, when bids were opened by the Authority, at $2,633,000.

Wood River Levees—The LaCrosse Dredging Co., Chicago, Ill., has been awarded a $1,286,610 contract for levees in Wood River Drainage and Levee District, Ill., by the U. S. Engineers, St. Louis, Mo.

Housing—East Base Housing Corp., Great Falls, Mont. will take bids Aug. 14 for twenty-four apartments at Great Falls at an estimated cost of $1,000,000.

Newspaper Plant—Kankakee Journal, Kankakee, will take bids after Aug. 1 for newspaper publishing plant to cost about $1,000,000. Philip D. West, Chicago, is architect.

Hospital—Salem County Memorial Hospital, Salem, N. J., received low bid for constructing hospital addition from Irwin & Leighton, Philadelphia, Pa. The low bid was $1,067,000.

Research Laboratory—Wark & Co., Philadelphia, Pa., will construct research laboratory in Philadelphia for the E. I. du Pont de Nemours & Co., of Wilmington, Del. to cost $1,500,000.

Office—Henger Constr. Co., Dallas, Tex., will build 15-story office building at Corpus Christi, for Sam E. Wilson of Corpus Christi at an estimated cost of $2,500,000. Walter W. Ahlschlager of Dallas is architect.

BLS "housing-starts" gain

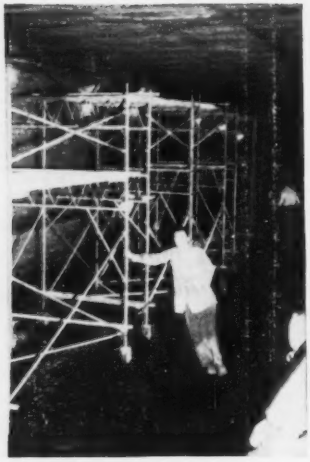
New home-building starts in June will total 100,000 units, according to a preliminary Bureau of Labor Statistics estimate. This is topped only by the record 100,300 non-farm dwelling starts recorded in May, 1948. In June, 1948, BLS reported 97,800 starts, in May, 1949, 95,000.

Housing starts are lagging only 7 percent behind last year at the half (if the June estimate is confirmed), with a total of 443,400 in 1949 compared with 477,600 new units started at this time a year ago.

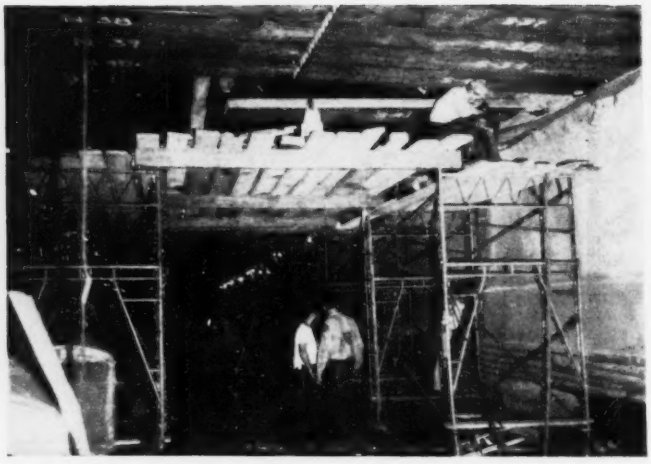
Equipment costs ease

The Marshall and Stevens all industry equipment cost index is down to 160.6 for June and July, 3.3 percent below its high of 166 in December, 1948 (1926 = 10).

Equipment costs did not go up as high as building costs. On the 1913 base the peak all industry equipment cost index was 286.7 compared with 381 for industrial building cost, both for December, 1948. July values are 277.4 for equipment, 363 for building.



THE WHOLE OUTFIT, including trains of scaffolds, comes in shortly after 8 p.m. Men will be on scaffolds in a few minutes.



READY TO SET CEILING STEEL by 8:30, ironworkers have unloaded tailored pieces of cellular decking onto their working platform, which is a pair of scaffolds bridged to leave room for truck passage.

It's a Brand-New Construction Job Every Night in the Holland Tunnel

LAST NIGHT and the night before—clear back to May 17—contractor James Mitchell of Jersey City moved crews and equipment into the Holland Tunnel. And each morning he pulled them all out, leaving nothing but more new materials in place.

The more Mitchell left in place, the less the Port of New York Authority could show of damage caused Friday, May 13 by one of the worst tunnel fires in history (ENR May 19, p. 11). But while the basic structure remained bare, Port Authority engineers could show how well their predecessors designed and built this pioneer vehicular tunnel.

Although a section of the concrete lining partly spalled off, to expose ribs of the cast-iron tube segments, the remaining lining was sound and there was no evidence of failure in the cast iron.

However, the fire left a spectacular mess: hung ceiling sagging and gone; wall tiles snapped from their beds, vitrified clay tile wall ducts exposed, cracked and broken. This masonry, plus some reinforcing mesh, made an uneven bed of rubbish on the roadway around the twisted and fused vehicles.

As soon as the fire was out, Port Authority and fire department forces went after the mess with small bulldozers, front loaders and trucks, and in 56 hours vehicles were passing eastward through the stretch that so lately had been an inferno.

Keep the traffic rolling!

In the meantime, the engineers reckoned the damage and began to plug toward a dual objective: Keeping the traffic rolling and repairing the tunnel.

Damage extended 500 ft. east and 200 ft. west of the fire's source (1,838 ft. from west portal). In this stretch 536 ft. of ceiling and 700 ft. of the walls would have to be replaced completely.

In addition, replacement would include 300 ft. of the tile duct banks, with their various power and communication cables, 750 ft. of walkway nosing, other minor services and 1,233 sq. yd. of roadway. At the fire site 5,000 sq. ft. of structural tunnel lining concrete would have to be built up an average of 4 in.

To keep the traffic rolling, the engineers decided to design a ceiling that would not require falsework supports, and to let a contract for night work. By eliminating falsework (the old ceiling was a reinforced-concrete slab) they could clear the tube for passage in non-working hours, and by working at night, they could divert east-bound traffic to one lane of the west-bound tube at a time when traffic normally was light.

The ceiling design retained the main-support features of the original slab—a pair of centerline angles hung by Monel metal bars from the top of the cast-iron tube, plus taut $1\frac{1}{4}$-in. round horizontal rods, tied at their ends to in-standing tube ribs (during rod-replacement, exposure of the ribs afforded an additional opportunity to inspect the cast iron). On this support the original mesh-reinforced slab had been placed. In the new ceiling design a longitudinal split tee is welded web-up to the underside of the angles. This supports one end of each of two flanking banks of 5-in. cellular steel decking (see illustration) whose outer ends are carried in keyways routed in the concrete tunnel lining. Reinforcing bars are laid in the open channels of the decking, except where

HOW THE TUNNEL LOOKED after the fire and before the repair job. Sagging ceiling, exposed cast-iron tunnel structure, and a mess of rubble on the roadway. (PNYA photo)

WALLS RENEWED. Concrete nozzleman builds up a piece of wall. Note end of ceiling tie rod above his right shoulder. At right, tile-setter floats his base. This is the wall section shown in the damage photo at left.

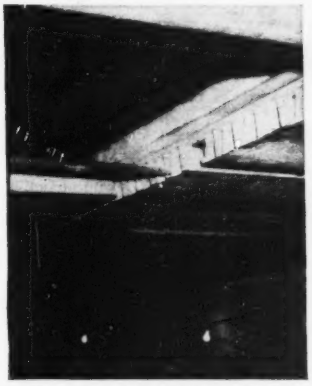
tie rods occupy the space, and concrete is placed in and over the 5-in. decking to a gross depth of 6 in. The underside is gunited 1½ in. thick. Mesh reinforcement for the gunite is hung 1 in. off the surface, on stud hooks welded to the decking (see illustration). Additional support for the mesh is obtained by tying it through the decking to bar-reinforcement in the open cells. The ceiling is pierced only by rectangular exhaust ports that lead foul air into the exhaust-duct space above. (During construction, the unrepaired ceiling was one big vent; occasionally men lost their hats up into the exhaust duct.)

The nightly new construction job

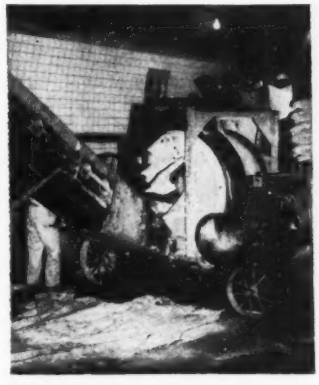
The ceiling, then, was supported from above at all times during construction. This meant that the whole roadway could be cleared when construction was not going on.

And completely cleared it was. This reporter visited the site one evening, arriving in the empty tube only a few moments after 8 o'clock, when tunnel traffic had ceased. Partly-repaired ceilings and walls testified that a job was in progress, but no men, equipment or materials were in sight. The only sound was the eerie whistling of the disordered ventilation system.

Soon a distant roar began, increasing until a truck came around the bend from the Jersey side. The roar increased and more trucks arrived, most of them pulling as well as carrying.



STEEL CEILING STRUCTURE. At left, decking has been welded up to centerline angles. Permanent decking support will be a tee upon whose flanges the decking will rest. At right, workman welds hooks, for gunite mesh, to bottom of decking.



CEILING CONCRETE goes from 10s mixer up belt loader to buggies in exhaust duct. (A windy job for the buggymen.) At right, joint between finished section and section about to be concreted shows reinforcing over centerline angles. (ENR Staff Photos)

Towed equipment included a cement gun rig on a rubber-tired platform, a mixer, two compressors, three welding machines and, last, several trains of caster-mounted pipe scaffolds. Loosely roped together, these scaffold trains made the biggest impression (one was 150 ft. long).

The scaffolds were put to work promptly. A few were set facing each other and bridged across to provide a platform for ceiling-steel work. Others were set for gunite crews and others were set for stud welders. In the meantime, horses, scaffold planks, mortar boxes and materials were unloaded from trucks. It didn't take long. By 8:25 everything was in, and in a few more minutes the whole plant was set up for the "day's work."

Some of the steps of work are pictured on the previous page. In addition, other items of procedure are noted: A few lead joints in the cast-iron tube were re-caulked; ceiling hangers (which had snapped at various distances from the arch lining concrete) were repaired by welding new pieces to the old stubs; cellular-deck pieces were tailored above ground and marked for position; temporary centerline support for decking was obtained by welding the decking to the underside of centerline angles; tees, upon which decking finally rested, were attached to angles with flat bars, welded upstanding to the tee web and inserted upward between the angles, for welding to the angles' upstanding legs (note a bar projecting between angles, in last picture, previous page); all tunnel lining in the wall area was chipped thoroughly before gunite build-up began; mesh was tied down to cinch anchors in the concrete; new vitrified clay tile duct banks were installed on one wall, which was furred out to a vertical face before tile was set.

So the job has gone on for two months. The whole outfit comes in shortly after 8 p. m., and it all returns to the yard, above ground on the Jersey side, at 4:30 a. m. It's a brand new construction job five nights a week. The crew has numbered as many as 90 men, but now it is tapering off. Completion is expected by August 15.

For the Port of New York Authority, John M. Kyle is chief engineer, Rudolph F. Schaefer was in charge of the design, John Terry is project engineer, and Joe Gavin is resident engineer. For James Mitchell, Inc., Jersey City, general contractor, Charles Scheidecker is general superintendent and Alfred Nelson is superintendent. The Cement Gun Company, Allentown, Pa., is the prime contractor for guniting. Others include: Beach Electric Company, Newark, N. J. (electrical work); G. M. Crocetti, Inc., Jersey City (tile work); Shinick Building Company, New York (vitrified clay duct repair).

Los Angeles Sets Rules For Smoke Regulation

The recently constituted Los Angeles County Air Pollution Control District has approved rules for the regulation of smoke in the county area. The county organization is one of the very few in the United States that has attacked the smoke control problem for such a large area.

Of particular interest to municipal and sanitary engineers are rules 50 and 54 of the regulations.

Rule 50, relating to the judging of the amount of air contaminant says:

"A person shall not discharge into the atmosphere from any single source of emission whatsoever any air contaminant for a period or periods aggregating more than three minutes in any hour which is:

a. As dark or darker in shade as that designated as No. 2 on the Ringelmann Chart, as published by the United States Bureau of Mines, or

b. Of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in subsection (a).

Rule 54 prohibits the discharge "in any hour, from any source whatsoever, dust or fumes in total quantities in excess" of the amount shown in the accompanying table.

For the benefit of those using the table, the rules define the term "process weight per hour" as: "Process weight is the total weight of all materials, including solid fuels, introduced into any specific process. . . The process weight per hour is derived by dividing the total process weight by the number of hours in one complete operation from the beginning of any given process to the completion thereof. ."

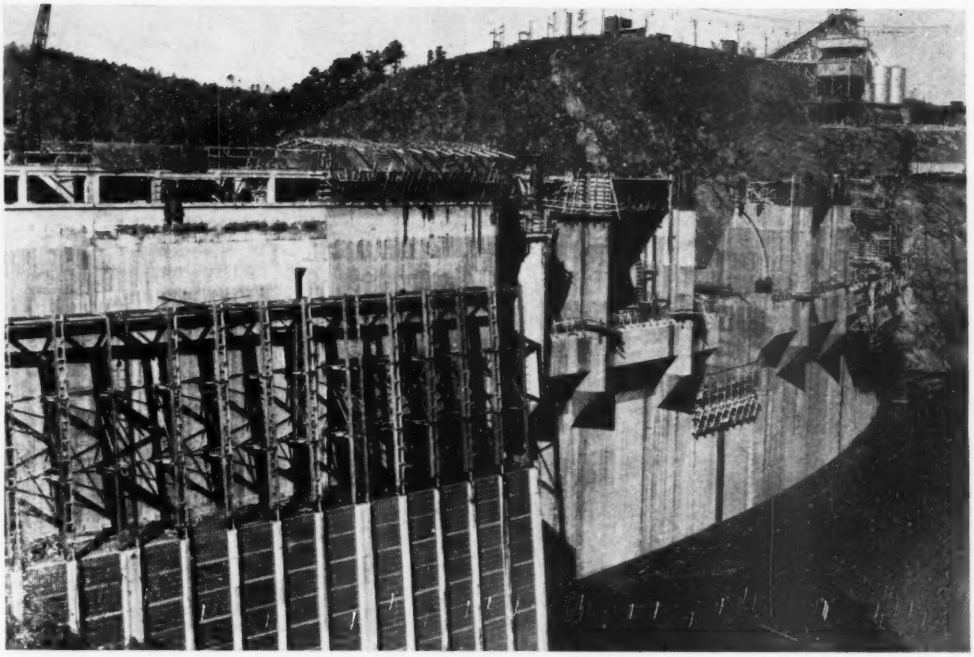
To use the table, take the process weight per hour. Then find this figure on the table, opposite which will be the maximum number of pounds of contaminants that may be discharged into the atmosphere in any one hour of the day.

If a manufacturer has a process which emits contaminants into the atmosphere and takes three hours to complete, he will divide the weight of all materials in the specific process, giving his process weight per hour.

For example, where the total process weights are 1,500 lb., the process weight per hour is 500 lb. The table then shows that he may discharge more than 1.77 lb in any hour of process operation. Where process weight per hour falls between figures in the left-hand column, the exact weight of permitted discharge may be interpolated.

MAXIMUM ALLOWABLE DISCHARGE PER HOUR

Process Wt /hr (lbs)	Allowable Disch /hr (lbs)	Process Wt /hr (lbs)	Allowable Disch /hr (lbs)	Process Wt /hr (lbs)	Allowable Disch /hr (lbs)	Process Wt /hr (lbs)	Allowable Disch /hr (lbs)
50	.24	1300	3.26	3500	5.52	8500	9.03
100	.46	1400	3.40	3600	5.61	9000	9.36
150	.66	1500	3.54	3700	5.69	9500	9.67
200	.852	1600	3.66	3800	5.77	10000	10.0
250	1.03	1700	3.79	3900	5.85	11000	10.63
300	1.20	1800	3.91	4000	5.93	12000	11.28
350	1.35	1900	4.03	4100	6.01	13000	11.89
400	1.50	2000	4.14	4200	6.08	14000	12.50
450	1.63	2100	4.24	4300	6.15	15000	13.13
500	1.77	2200	4.34	4400	6.22	16000	13.74
550	1.89	2300	4.44	4500	6.30	17000	14.36
600	2.01	2400	4.55	4600	6.37	18000	14.97
650	2.12	2500	4.64	4700	6.45	19000	15.58
700	2.24	2600	4.74	4800	6.52	20000	16.19
750	2.34	2700	4.84	4900	6.60	30000	22.22
800	2.43	2800	4.92	5000	6.67	40000	28.3
850	2.53	2900	5.02	5500	7.03	50000	34.3
900	2.62	3000	5.10	6000	7.37	60000	40.0
950	2.72	3100	5.18	6500	7.71	or	
1000	2.80	3200	5.27	7000	8.05	more	
1100	2.97	3300	5.36	7500	8.39		
1200	3.12	3400	5.44	8000	8.71		



UPSTREAM FACE of Allatoona Dam when the diversion monolith was being filled in. Water flowed through sluiceways in the dam base. The concrete mixing plant is on the hilltop at the upper right. (A. D. Haile photos).

Massive Allatoona Stops the Floods

WITH the placing of nearly 525,000 cu. yd. of air-entrained concrete across a 1,200-ft. wide gorge, Allatoona Dam stands ready to check the flood waters of Georgia's Etowah River—and by early 1950 to permit production of 169,000,000 kw.-hr. of electric energy annually.

Initial project in the development of the water resources of the Alabama-Coosa River system, the $32,000,000 dam sits astride the Etowah River about 5 mi. southeast of Cartersville, Ga., near Atlanta. It is a gravity-type structure, 200 ft. high and 1,250 ft. long at roadway level.

At non-overflow sections, the dam is 163 ft. wide at the base, 19 ft. at the top. The gate-controlled spillway, with crest 145 ft. above the stilling-basin floor, is 500 ft. long. Near the base, the overflow section is pierced by four 5-ft. 8-in. by 10-ft. sluiceways. The powerhouse is downstream on the left (south) bank, separated from the dam by the switchyard.

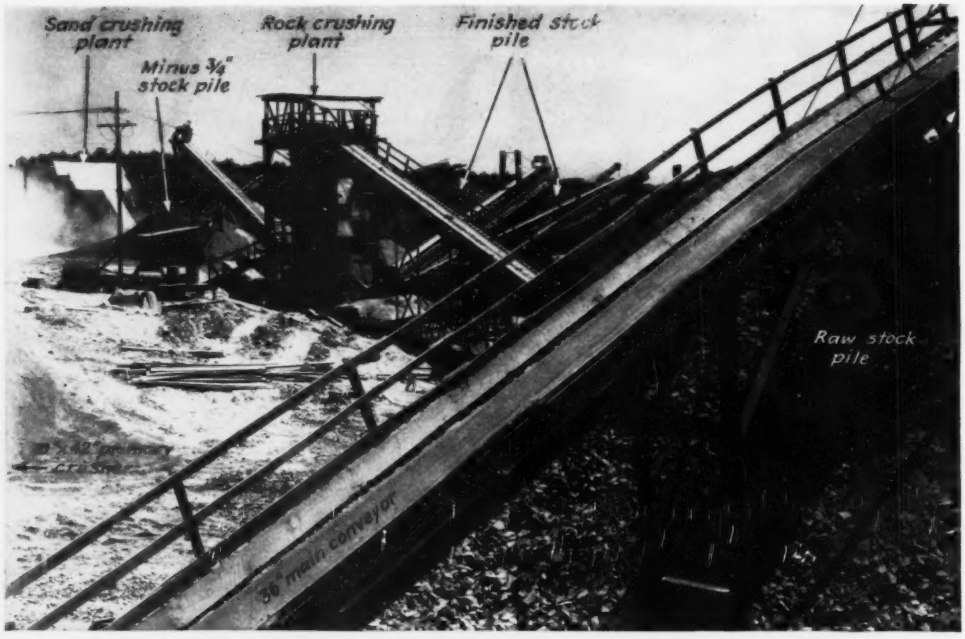
Construction of the dam proper began with the cutting off of the river from the south half of the site with a cellular, steel sheetpile cofferdam. The sheeting was driven by a revolving gantry to give at least 40 ft. of freeboard above low-water level. Spaced 50 ft. apart on centers and connected by short arcs, 40-ft. dia. cells were driven successively out into the current starting from the left bank upstream and downstream of the dam. They were formed with 2-course wood templates, which were held in place by four 27-in. steel I-beam spuds. The cells were sealed with 5 ft. of clay and filled with rock obtained from the abutment excavation.

After the inclosure had been dewatered, the site was excavated to expose the schist and quartz formation on which the dam was to be founded. Then, the south half of the structure, including the stilling basin, was concreted. However, one monolith was stopped about 24 ft. above the riverbed—left low for diversion of the river during the construction of the north half.

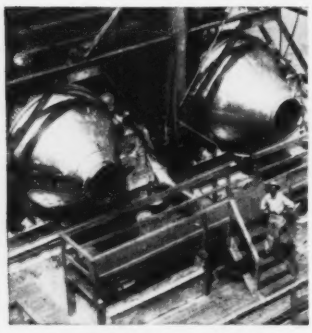
As soon as the powerhouse was inclosed and all monoliths were a minimum of 35 ft. above the diversion monolith, the upstream and downstream arms of the cofferdam were removed and a new cellular cofferdam was built to cut the river off from the north half of the site. This inclosure consisted of two lines of cells, extending to the right bank, the upstream line tied into the dam by an embedded pile and the downstream line connected to the dam by a timber crib. When these arms were in place, the river arm of the first cofferdam was removed, the second stage site was dewatered and excavated, and the north half of the dam was concreted. Finally, the second stage cofferdam was removed, and filling of the low monolith started, the river meanwhile flowing through the sluices in the dam.

Air-entrained concrete used

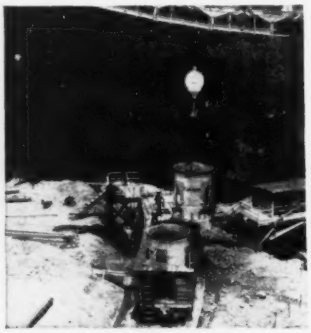
Allatoona Dam was the first dam to be started with air-entrained concrete. At the mixer, 200 to 225 cc. of an air-entraining agent was added per cu. yd. Air contents of the minus



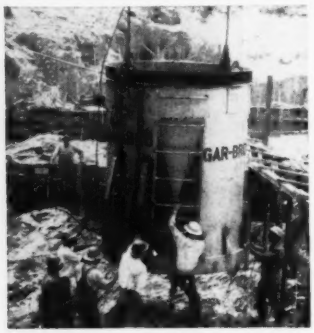
1. AN AGGREGATE PLANT MANUFACTURED SAND AND STONE for the dam concrete by crushing rock. The conveyor in the foreground brought 8-in. maximum size stone from a primary crusher (not shown) to first surge pile (right). This material was then fed to tower (center) where it was crushed and screened. The three largest stone sizes were sent to storage piles, while the remainder went to a second tower (left) for production of smallstone and sand.



2. TWIN MIXERS, each of 4-cu. yd. capacity, dumped concrete into . . .



3. BUCKETS holding 8 cu. yd., which were carted to a cableway for . . .



4. CONCRETING monoliths. Discharge was controlled pneumatically.

1½-in. portion of the mix generally ranged slightly over 4½ percent, meeting specifications calling for 4½ plus or minus 1½ percent air. Density averaged 158 lb. per cu.ft.

The concrete was made with a mixture of 20 percent slag cement and 80 percent portland cement by volume. Incorporation of the slag cement was decided upon for economy, improved workability, and lower heat of hydration, prior to the decision to use only air-entrained concrete. Use of air entrainment resulted in an increase in workability and a decrease in the water-cement ratio.

The mass concrete used in the dam contained 6-in. maximum size aggregate. The cement and water contents were, respectively, 3 bags per cu.yd. and 7 gal. per sack for the interior concrete, and 4 bags per cu.yd. and 5.6 gal. per sack for the outer 5 ft. at the upstream and downstream faces of the dam.

For structural concrete, 4½ bags per cu.yd. were used with 5.7 gal. of water per sack, the maximum size aggregate being 3-in. And for thin-section concrete, 5½ bags per cu.yd. were mixed with 5.5 gal. of water per sack, and aggregate was limited to a maximum of 1½ in.

The aggregate, including sand, was obtained by crushing rock. It was produced in a quarry by a 4,000-ton-per-day plant 15 mi from the dam.

The rock was a dolomitic limestone containing about 50 percent calcium

carbonate, 41 percent magnesium carbonate, and 5 percent silica. Four sizes of stone were produced: No. 4 to ⅜ in., ⅜ in. to 1½ in., 1½ to 3 in., and 3 to 6 in. Manufactured sand met the following sieve analysis:

Sieve Size	Percent Passing
⅜ in.	100
No. 4	95 to 100
No. 8	80 to 90
No. 16	55 to 75
No. 30	30 to 60
No. 50	12 to 30
No. 100	6 to 11

The aggregate plant included two surge piles for partly manufactured material, two towers containing all processing screens, pile storage over reclaiming tunnels for the five final sizes of stone and sand, and additional dead storage for processed stone.

A primary jaw crusher, fed by trucks dumping onto an apron feeder, reduced quarry-run stone to a maximum size of 8 in., which was conveyed by a 36-in. belt to the first surge pile (1,400 tons live and 3,200 tons dead capacity). Under this pile, in a 7-ft. dia. corrugated-metal reclaiming tunnel, was a belt that fed the material to the top of the first tower.

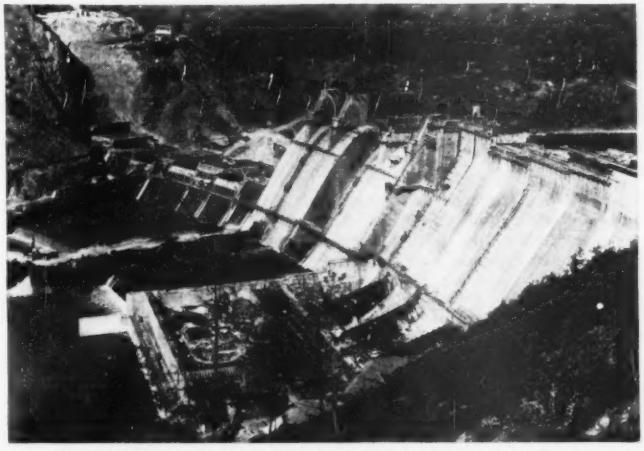
This tower contained a triple-deck primary screen, double-deck secondary screen, cone crusher, and a gyratory crusher making the three larger sizes of finished aggregate. From the first tower, the finished aggregates went directly by conveyor belts to storage piles located over a loading tunnel.

Everything under ⅜ in. passed to the second surge pile, with part of the flow going through a dryer when necessary.

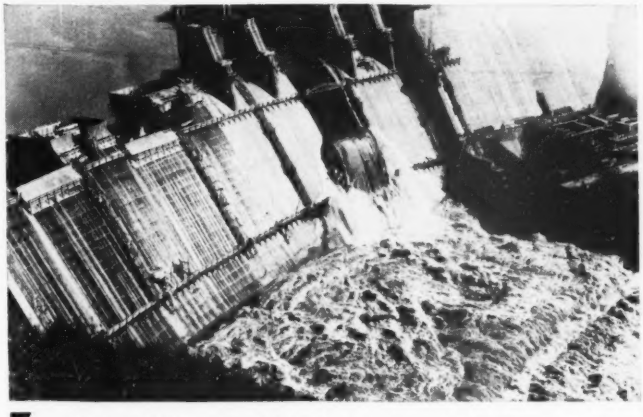
An improvement in the usual process was brought about by inserting this dryer (as used for asphalt aggregate) between the first screening tower and the sand surge pile. The dryer indirectly gave a better control of the fines in the finished sand by increasing the efficiency of both the smaller screens and the air separator. The feed through the dryer was controlled by the amount of moisture in the quarried rock and varied from 0 to 50 percent of the total feed going to the sand surge pile. This aggregate tended to dry the remainder of the rock in the surge pile by contact with the dried material.

From the sand surge pile, the rock passed to the second tower which housed three sets of screens, one roll crusher and two hammer mills. From this tower, the ¾-in. rock went to the stockpile alongside larger stone storage, while manufactured sand went through a dust separator, to remove

5. FIRST-STAGE DIVERSION—A cellular, steel sheet pile cofferdam cut the river off from the south half of the site.



6. SECOND-STAGE DIVERSION—A second cofferdam permitted dewatering the north half of the site. The first cofferdam was removed.



7. FLOOD FLOW was provided for by leaving one monolith low.

the excess fines, and then onto a sand storage pile.

A tunnel belt loaded the sand directly into 12-ton dump trucks for haul to the dam. One size at a time, the coarse stone was discharged onto another tunnel belt and fed through a washer screen into a bin for truck loading. Total live storage over this tunnel was 3,000 tons, but there were about 50,000 tons of total dead storage in piles alongside for everyday use.

The aggregate was dumped by the trucks at the damsite into a series of five bunkers having a total live capacity of 2,030 tons. These bins were located adjacent to the mixing plant near the top of the north abutment of the dam. The aggregate was then fed by a 450-ft. long, two-flight 30-in. belt to the mixing plant.

Bulk cement was hauled in covered, watertight, 1½-ton dump trucks from a rail point 3 mi. away and stored in three storage bins at the mixing plant. Two held 5,256 bbl. of portland cement and one 1,176 bbl. of slag cement.

Concrete temperature controlled

Water was pumped from the Etowah River and stored in a 50,000 gal. tank. When the concrete temperature approached 70 deg. F., it became necessary to cool the mixing water. This required pumping from the storage tank into the cooling system for efficient operation. The cooling plant consisted of two types of equipment, one for cooling the water and the other for making slush ice. The water-cooling installation consisted of three radial compressors.

The installation operated successfully during the summer of 1947, but it was found that cooling the mixing water alone was not sufficient to cool the concrete. It was necessary to install facilities that would provide ice along with the cooled mixing water. Hence, an ice machine of 30 tons refrigerating capacity was installed.

In order that precooling of coarse aggregates at the plant stock piles might be accomplished with increased efficiency, a roof was constructed to protect the piles from the direct rays of the sun. Canvas covers were placed over the conveyor from the stock piles to the mixing plant bins. And a 2-in. insulated pipe was installed from the chilled-water storage tank to spray heads over the coarse-aggregate stock piles and over the mixing-plant coarse-aggregate bins. The coarse aggregate was sprayed with cold water for about 5 hr. before placing, a half-hour being allowed for the stock piles to drain.

The mixing plant included a completely automatic batching plant and two 4-cu. yd. tilting mixers, designed for 150 cu. yd. per hr. Concrete was mixed at 9 rpm. for 2½ min. and dumped into an 8-cu. yd. bucket on a transfer car that had pockets for two buckets. Electrically operated, the transfer car moved on standard-gage trucks to a position where the buckets could be picked up by the cableway for delivery to the placing site.

Air regulated bucket discharge

The bucket used was of 8-cu. yd. capacity, with an air-controlled discharge to meet specifications calling for placement of not more than 4 cu. yd. at one time. Objection raised to the old-type 8-cu. yd. bucket was that concrete of low cement and water content could not be consolidated properly if placed in batches of more than 4 cu. yd. The contractor offered to reduce his bid if allowed to use the 8-cu. yd. bucket, and approval was given on condition that a maximum of 4 cu. yd. be placed at a time. This agreement saved the government $80,000 and speeded concreting.

Development of the pneumatic dumping apparatus provided better control of placing the concrete and eliminated vertical oscillation of the bucket as it was discharged. The control valve operator and the cableway signalman, working together, could hold the bucket within the 5-ft. height specified for dumping without difficulty.

Manufactured by Garlinghouse Brothers, Los Angeles, Calif., the bucket is 90 in. in diameter and 123 in. high. It has the largest discharge opening ever used for a bucket—30x52 in. Gates are opened by a ram moved by air at 100 psi. They are closed when this air is passed into a receiver tank set for 30 psi., which furnishes back pressure on the ram. A modification of this bucket, having twin 4-cu. yd. compartment incased in a cylindrical framework, is now in use on the Narrows Dam near Murfreesboro, Ark. (ENR Mar. 3, p. 38).

The Allatoona bucket, which weighs 20 tons when fully loaded, was handled by a high-line cableway. This had a 3-in. cable that sagged to within 85 ft. of the dam roadway as it spanned the 1,710 ft. between the fixed headtower on the north abutment and the movable tailtower on the south. Mounted on standard gage tracks and operated by remote control from the headtower, the tailtower had a travel of 750 ft.

The greater portion of the concrete was placed at night in order that the highline would be available for material handling during the day shift. Night placing enabled colder concrete to be obtained in the summer, while not greatly affecting winter placing. Concrete was placed in 5-ft. lifts in alternate monoliths which were from 40 to 60 ft. long. Not more than a 25-ft. height differential between adjacent units was permitted. Lifts were cast 120 hr. apart.

Dumped by the bucket in two 4-cu. yd. piles, starting at the upstream face, the concrete was spread in 18-in. deep layers and vibrated pneumatically. Each lift was sloped downward on a 5 percent grade to facilitate cleanup of horizontal joints.

Three 20-ft. dia., 240-ft. long steel penstocks were installed to supply water to 50,000-hp., single-runner, vertical shaft Francis turbines, and a 5½-foot dia., 280-ft. long penstock was put in to feed a 2,900-hp. turbine for a service power unit. This 2,000-kw. service generator and two of the ultimate three 36,000 kw., vertical-shaft, main generators will be installed initially.

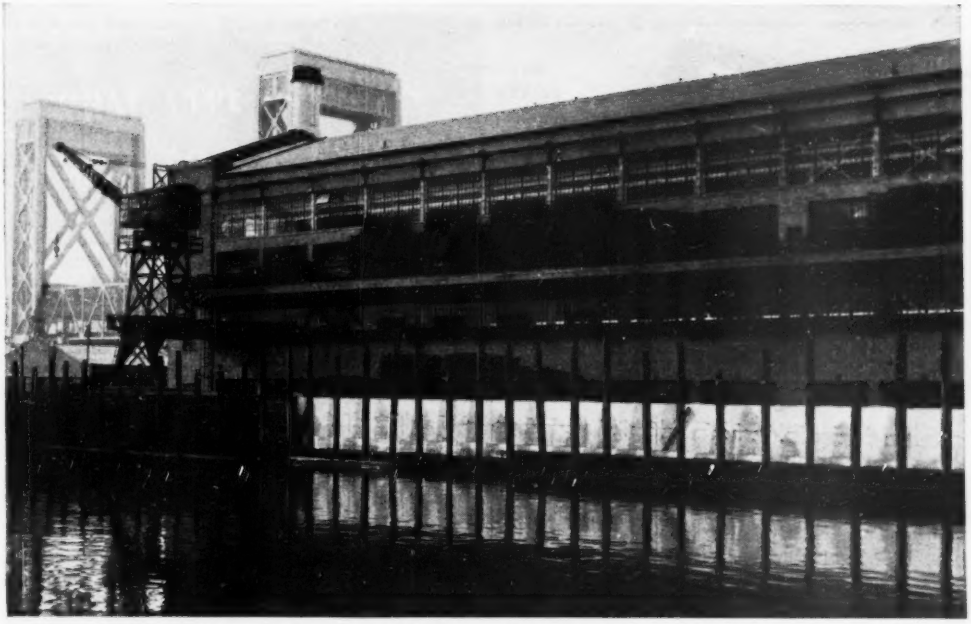
Concreting almost finished

Construction began June 8, 1946, and placing of concrete started in May, 1947. To date, all the mass concrete—408,000 cu. yd.—and all the structural concrete—82,250 cu. yd.—has been placed, and about 80 percent—27,000 cu. yd.—of the thin-section concrete is in position.

The reservoir behind the dam will provide 389,000 acre-ft.—the upper 25 ft. for flood regulation, 253,000 acre-ft. for power drawdown and 80,000 acre-ft. for dead storage. Covering an area of 11,500 acres at top of power pool and 20,300 acres at top of flood-control pool, with shorelines 180 and 260 miles long, respectively, the lake is destined for recreational development. Clearing of the reservoir to El. 840, which is 5 ft. above the spillway crest, is being done by Coastal, Inc., of Panama City, Fla.

The Allatoona project is being built by the Corps of Engineers. It was under the supervision of Col. Joseph J. Twitty, district engineer, Mobile District, until June, 1949, when he was transferred and Col. Walter K. Wilson, Jr., became district engineer. Charles A. Jackson is resident engineer.

The contractor is National Constructors, Inc., which is a joint venture of Arundel Corp., Baltimore, Md., L. F. Dixon Co., Los Angeles, Calif., and Hardaway Contracting Co., Columbus, Ga. K. L. Parker is project manager and A. D. Haile, office manager. The aggregate plant was designed and operated by Lambert Bros., Knoxville, Tenn., and Kershaw Mining Co., Birmingham, Ala.



HEAVY CONCRETE WALL around Long Beach, Calif., factory will protect plant from high water due to a real subsidence.

Sinking Factory Protected from High Water

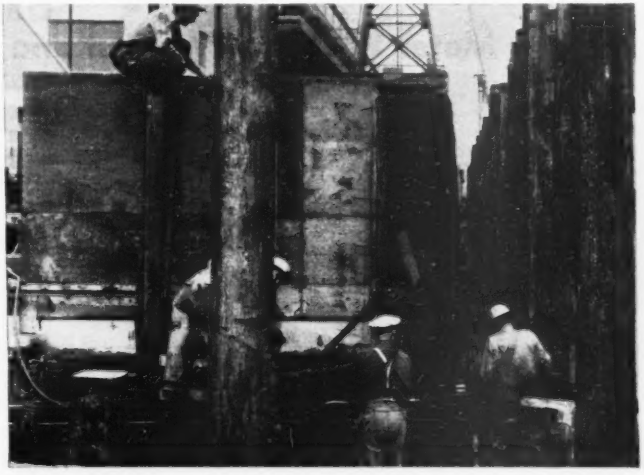
To PROTECT a 20-year old waterfront factory from encroachment by high tide (due to subsidence of the Long Beach, Calif., area), an $800,000 system of walls and dikes was constructed recently.

Subsidence at this Ford Motor Co. plant has been as much as 5¼ ft. since 1937. Continued settlement without protective works might have subjected the floor slab of the plant to destructive uplift pressures during high water periods. Some minor flooding of depressed spur tracks had been a regular occurrence.

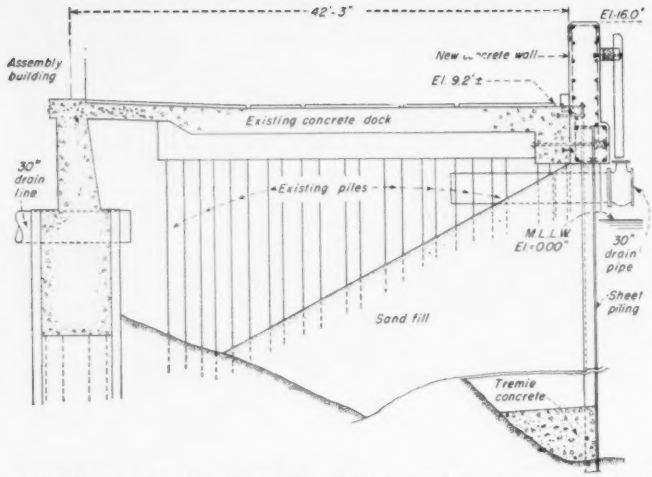
Subsidence in the Long Beach area was first noted 18 years ago, and it has continued at an increasing rate. It is most generally attributed to the effects of pumping fluids (oil, gas and water) from the Wilmington oil field that underlies the area. All indications are that it will continue for some time (ENR June 16, p . .).

To date, there has been no major damage but installations in the Terminal Island-Long Beach area are in increasing jeopardy. The work done on the Ford plant is one of the first major protective jobs in the area. It represents a relatively simple, yet effective, means of protecting a multi-million dollar waterfront installation.

The plant is located on the mainland side of Cerritos Channel just



WORKMEN set heavy reinforcing steel required to resist dynamic force of docking ships.



A CONTINUOUS ROW of sheetpiling was driven around the existing concrete dock. This supported 11-ft. wall that added 7 ft. for protective purposes.

across from Terminal Island. Two sides of the plant have considerable docking space with a 40-ft. wide pile-supported dock.

Walls, floors and footings are supported on long concrete and wood piles. Two 30-in. storm-drains under the floor dump under the dock area. It is necessary to keep the storm-drains open, but as a result, high water under the docks can get under the plant floor slab and result in uplift.

First step in the protection program was construction of earth-and-rock dikes along the edge of the plant, fronting on water where no docks exist. These were built high enough to provide for future settlement.

Second, a continuous row of sheetpiling was driven in the dock area and topped by an 11 ft. wall,, 7 ft. above dock level. Partially backfilled on the plant side with sand, the sheetpiling will minimize the amount of water that will speed in under the dock.

When the water does get to a predetermined level (10 ft. below the dock) a pumping system is automatically switched on. This system includes three 7,500 gpm. capacity pumps and is considered adequate to keep ahead of any storm ground water.

The sheetpiling consisted of 38 lb. Z piles in 60 and 65 ft. lengths. To seal the toe of the sheetpiling, a tremie concrete plug was poured on the factory side. This was poured up to elevation minus 26 ft. Sand fill was placed behind the piling on a 1.25 on 1 slope.

Capping the sheetpiling is a 11 ft. high reinforced concrete curb with the top at elev. 16 ft. (mean low water is at elev. 0.00). Since the tide at Long Beach averages about 4 ft. with highs of as much as 7 ft., water was threatening the main slab at elev. 9.2 ft.

The completed curb will permit water to rise as high as the top of the curb without endangering the plant. Tides that high are not expected but continued subsidence is expected to bring this wall down to high tide range. The height of the wall is expected to be sufficient for anticipated subsidence.

Although the wall is to be protected by a fender system, heavy reinforcing is required to resist the dynamic force of docking ships. Major reinforcing consists of small steel frames made of structural steel angles and channels. These frames are bolted on 6 ft. centers to the top of the sheetpiling. Thus, heavy docking loads are resisted by the sheetpiling.

These protective works were designed by J. H. Davies, consulting structural engineer, Long Beach, Calif. Fred Sash supervised construction for the Ford Motor Co.

Parking Meter Revenues Vs. First and Maintenance Costs

Parking-meter income in 62 large cities averaged more than $74 per machine last year, according to the Municipal Finance Officers Association.

A recent survey of cities over 100,000 population with parking meters by the Chicago Dept. of Purchases and the National Institute of Governmental Purchasing, Inc., reveals that the 62 municipalities reported receipts of $7.1 million from 95,466 meters last year.

Minneapolis' average receipt from its 2,100 meters was $166.67 while neighboring St. Paul realized an average of $113.12 from each of its 1,340 machines. Dayton averaged $108.92 per meter, Long Beach, Cal. averaged $107.31 and South Bend, Ind. averaged $106.67.

Cost per meter in 1,000 lots, delivered and installed, ranged from $58 to $76.50—an average cost of less than the average annual income.

Maintenance cost, including labor, repairs and collections, averaged $6.99 per year for each machine. Only 33 of the 68 reporting cities gave comparable answers to this query about maintenance cost.

Clogging difficulties

Clogging by foreign matter was the chief cause of parking meter trouble listed by the cities. Bent coins, slugs and vandalism also took their toll of the machines.

In total collections, Oakland, Cal., ranked first with $380,000 from 4,351 meters. Runners-up in collections were Minneapolis — $350,000, Denver — $327,897 from 5,037 meters, and San Diego—$323,000 from 4,450 meters.

Initial methods of paying for machines differed widely. Thirty-five of the reporting cities paid for meter receipts on a percentage of the income, four on a rental-purchase agreement and one paid one-half down and the balance from a percentage of receipts. Twenty cities paid cash for their meters.

Cities reporting on the effect of weather on parking meters listed temperature ranging from minus 25 degrees in Utica, N. Y. to 110 degrees in Oklahoma City. Four cities complained that condensation on coins caused clogging of coin insert slots and one reported dampness caused stickiness in flagging and winding operations.

WHAT TYPE DOMESTIC METER DO YOU NEED? . . .

We make both the disc and oscillating piston type meters in domestic sizes. We make these two designs so as to better serve our customers.

Our study of varying conditions in water plants throughout the country definitely establishes that a single type of meter is not the answer to all metering problems.

What type domestic meter should you use, disc or piston? In many cases experience or personal preference dictate the choice. Those in doubt are invited to consult with a Pittsburgh-Empire representative.

You can rely on him for an impartial recommendation as to the type of meter best suited to your local water conditions.

PITTSBURGH EQUITABLE METER DIVISION

ROCKWELL MANUFACTURING COMPANY

PITTSBURGH 8, PA.

Atlanta Boston Chicago Houston Kansas City Los Angeles
New York Pittsburgh San Francisco Seattle Tulsa

This

EMPIRE OSCILLATING PISTON METERS

Type 12

Type 14

Made with Empire balanced oscillating piston, famous since 1884 for accuracy and durability. Type 12 meter has bronze case with breakable bottom plate to protect interior parts from frost damage. Type 14 is a bronze bottom plate model for warm climates. Sizes ⅝-in., ¾-in., 1-in.

or This

PITTSBURGH NUTATING DISC METERS

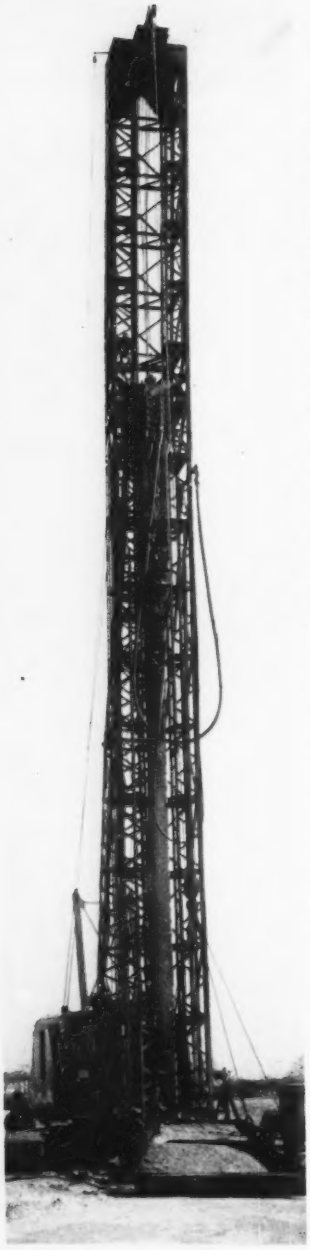
Arctic Type

Tropic Type

The highest quality measuring instruments of this type. Durably constructed to give years of uninterrupted service. Arctic type is protected against damage from freezing by breakable frost bottom. Tropic type has split case, all bronze housing. Sizes ⅝-in., ¾-in., 1-in.

PITTSBURGH-EMPIRE *Water Meters*

Making Sand Drains Stick in the Mud



SAND-PILE RIG—Rigid leads 83 ft. high, mounted on a crawler crane, carry hammer, special mandrel and sand skip (already charged in this photo).

POSITIVE PLACEMENT of vertical sand drains is obtained with the aid of compressed air on muck-stabilizing highway fill jobs in New Jersey.

At Manasquan Inlet, where the state is building two bridges, the connecting land link between the sites runs across a bed of marsh mud that extends to depths from 40 to 50 ft. below mlw. On this land link, one bridge-approach grade will rise to plus 41, creating a weight that would cause prolonged consolidation or lateral flow of native muck. Either effect would result in unwanted settlement of the approach grade.

To forestall this result the engineers chose vertical sand drains, or sand piles, (in preference to complete replacement of the muck bed by stable fill). According to theory, when these sand columns are inserted into muck at proper spacing they provide an exit for water, so that when a pervious load is imposed on the muck, the water is squeezed out in a reasonable time. A stable mass of earth remains.

The area to be improved at Manasquan was 760 ft. long, 280 ft. wide at one end and 330 ft. wide at the other. Sand piles were set at 10-ft. square spacing around the outside (under side-slopes) and at 8-ft. square spacing in the area's interior. In all, 3300 piles were placed, varying in length from 50 to 60 ft. They penetrated: 1. a 17-ft. bed of new sand fill, from plus 7 to minus 10 (the initial pervious load); 2. the 30-40-ft. muck layer; 3. 2 ft. into underlying hard sand.

Problem: Make a continuous drain

Getting a continuous sand-drain into the ground and making it stay there is the important field problem in this type of work, because discontinuity defeats the purpose of the pile by obstructing the flow of water. A uniform opening must be made and filled completely with sand.

Usually the hole for the sand is made by a pipe mandrel, either jetted or driven. Sand then is poured in and the mandrel withdrawn leaving the sand below. An open-end mandrel must be cleaned out before sand can be placed; a closed-end mandrel must open when the mandrel begins to rise. And in either case when the mandrel begins to rise there is no assurance that the sand will not arch momentarily at some elevation or other, creating continuity weaknesses and breaks that may be clogged by the surrounding muck.

Solution: Eject sand positively

It therefore becomes desirable to provide a means of positive and continuous sand-ejection as the mandrel rises.

At Manasquan (and other jobs in New Jersey) compressed air was the power for positive ejection. After the mandrel was driven and filled with sand, the mandrel was sealed. Air was admitted to the mandrel chamber and maintained at 100 psi as the mandrel was withdrawn.

The pressure held the sand down throughout the pulling process, judging from the fact that no excess sand remained at the pile location when the mandrel finally emerged.

At the left on this page is the rig for placing sand piles. A rigid pile-driving lead 83-ft. high is mounted on a 2½-yd. crawler crane with a 65-ft. boom. The lead tower carries a single-acting power hammer, a 2½-yd. paver skip, and the mandrel pipe, which is a 52-ft. length of 18-in. o.d. steel pipe with 1-in. walls.

The mandrel's top is worth notice, because it holds the key to positive pile ejection—the device that seals the air chamber. This device is a simple flap valve that opens to admit sand and closes to hold air. The mandrel head is in the form of a pipe wye. The sealed straight-up segment is the driving head; the eighth-bend segment is the sand hatch. This hatch contains the flap-valve, which is a disc of ½-in. rubber, backed by two ¾-in. thicknesses of steel plate somewhat smaller than the rubber disc. In the closed position the rubber seats against a steel ring (see sand-pouring picture; the flange on the sand-hatch segment holds the ring seat). In the open position the flap hangs from a hinge that is merely part of the rubber, clamped to the tube.

Placing piles

At Manasquan the driving rig worked on good ground. Marsh muck had been removed down to −10, and replaced by hydraulic sand fill to +4. This fill had been topped by 3 more feet of dumped sand that was rolled and shaped to a grade that would carry trucks.

The crawler rig spotted the leads

over a pile location. Workmen closed a steel disc on the lower-end of the mandrel (the disc was attached to the mandrel loosely with wire rope), and the hammer went to work. Meanwhile a truck dumped 2½ yards of sand into the skip, which then moved on rails up the leads, to discharge position. As the mandrel neared design penetration, sand-chuting began, the skip following its sand-hatch target downward until the full charge was in. Continued hammering during this period assured sand settlement in the mandrel.

Withdrawing the mandrel

When penetration was reached, a workman hauled on a line, which closed the sand-hatch flap valve, and another man opened the air valve that ran the mandrel chamber pressure up to 100 psi. Then the crane operator began to lift the hammer and mandrel, which were lashed together. The crane line worked through a 4-part tackle on the leads.

Chamber pressure remained constant throughout hoisting, which meant that a spectacular blow-off took place when the mandrel finally emerged. (see illustration). However, a small hole about a foot above the lower end relieved some of the pressure before the full blow-off of hold-down air occurred.

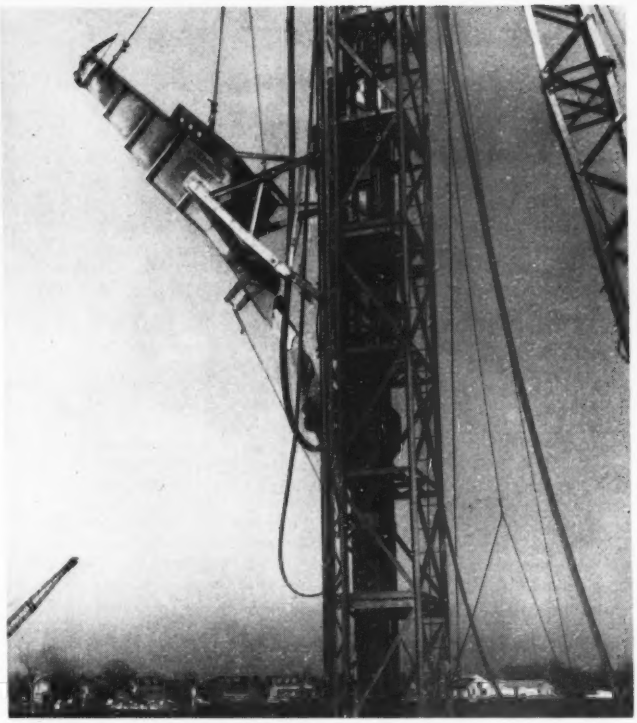
Air pressure for pile-displacement and hammer power came through a 4-in. steel line from a receiver fed by two 500-cfm. portable compressors.

Job experience

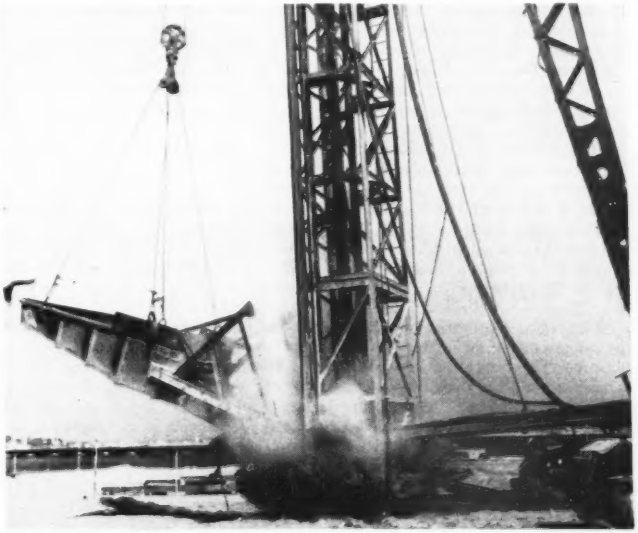
In driving the mandrel, it was more difficult to get through the hydraulic fill than it was to get through the top compacted layer. At the mandrel tip, a pointed wooden plug (left in the ground at the bottom of the pile) was no easier to drive than was the flat 1-in. plate that remained loosely attached during withdrawal. The mandrel itself experienced some minor failures, primarily in the form of circumferential cracks. These were repaired with welded scabs, generally 18 in. long and 4 in. wide.

About 30 piles were set daily. The maximum being 42 for a 10-hour day. This is a maximum performance of more than 2,000 ft. of piles a day. (In a west-coast job where several earlier types of rigs worked, the best record was 1400 ft. per day. ENR Mar. 6, 1947, p. 91.).

The contractor on this job was R. B. Jaggard Engineering Co., Westmount, N. J.; Kenneth Hickman, Supt.; Paul Heyniger, construction engineer. J. E. Dederick was resident engineer for the New Jersey State Highway Department.



IN GOES THE SAND—Open hatch at mandrel top receives vertical-drain sand from skip. Continued impact from pile hammer tamps the sand. Next, sand hatch will be closed, air blown into mandrel to hold sand down during mandrel withdrawal.



POOF! The mandrel comes out. Hold-down air, at 100 psi., is released to atmosphere, displacing a small amount of sand surrounding the hole. (ENR Staff photos).

Portable Reflecting Projector Simplifies Map Making From Photos

Daniel E. Houghton

Mechanical Engineer, Reed Research, Inc., Washington, D. C.

A PORTABLE reflecting projector that focuses automatically at all positions between ¼ reduction and 3½ enlargement has been developed under the auspices of the Engineer Research and Development Laboratories, Ft. Belvoir, Va. (contract No. W-44-009 eng. 486).

By mechanical means, the unique instrument makes possible a rigorous mathematical solution of the problem of continuously sharp focusing. It projects opaque aerial maps or photographs up to 9x9-in. size in sharp focus and proper orientation on a horizontal work table so accurately that detail in the photographs or maps may be compiled to true scale on a map manuscript as required in original map compilation or map revision.

Designed for field transportation by motor truck, the projector may readily be broken down into component parts for air transport. It is sturdy enough to withstand road shocks in transit, though it weighs only 386 lb.

The projector has two movable parts and two stationary ones. Fixed in position are the horizontal plotting table, 30x40 in. in size, and the main column supporting the entire equipment. On the tubular 4-in.-dia. stainless steel main column are keyed tracks for independent vertical movement of the lamp house—with its object photograph or map—and the lens system carriage. Both the house and the carriage are moved electrically.

At its lower end, the main column is pin-connected to a gimbal ring arrangement on the base casting. Four adjusting screws at the base control the perpendicularity of the column and give it structural rigidity. Two of the screws are positioned at 0 and 180 deg. on the gimbal ring, and two at 90 and 270 deg. on the mounting base.

Within the column tubing is hung the counterweight for the moving components. The travel-limiting switches as well as the fixed ends of the chain drives are attached to column-mounted brackets.

Specified clearance within the transporting truck restricts the height of the projector—at the point of highest travel—to 74 in. With the fixed plotting table set 28½ in. above the mounting base, and the range of magnification specified to vary from ¼ to 3½, the lens must have a focal length less than 8 in. In this projector the lens is a Wollensak 7¼-in. f/4.5, Enlarging Raptar with a variable diaphragm aperture.

Mounted on its own carriage, the lens system can travel from 10 to 30 in. above the plotting table. An extensible bellows allows independent positioning of lens and object to vary the image through the full range of magnification.

Within the object carriage—symmetrically located about the image-erecting mirror—are two vertically mounted 500-w. prefocus lamps backed by 3-in.-radius spherical reflectors concentric with the lamp centers. This positioning of lamps and reflectors gives point sources of light for an intensity of 2 foot-candles at a projected image of white bond paper, with the lens at full aperture and the projector set at a magnification of two diameters.

Light baffles in the lamp house overcome lens fogging caused by lamp light shining directly on the lens. Parabolic reflectors were discarded, because these reflectors concentrated circles of intense light at the center and gave relatively low intensity at the outer edges of the image.

To reflect light without loss of optical definition, the erecting mirror has an aluminized first surface. This first-surface mirror is aluminum coated directly upon the front surface of the glass. The light does not have to penetrate the glass once before reflection and once after reflection, as is the case with an ordinary second-surface mirror. Instead, the light is reflected directly by the mirror film covering the glass. The result is an avoidance of distortion due to refraction, and freedom from the necessity of using perfectly transparent, homogeneous glass for the supporting surface.

To cover 20-deg. tilt either side of center of a 9x9-in. object, the erecting mirror is shaped into a six-sided kite form. Positioned at 45 deg. to maintain the optical axis of the lens perpendicular to the pressure plate holding the object, the mirror is mounetd with eight clips on an aluminum plate of the same shape, faced with felt. This mounting plate, in turn, is attached to a rigid bracket on the house assembly by a ball-end bolt on the normal of the optical center of the mirror, with four set screws equally spaced about the ball-end bolt to compensate for mirror tilt. A removable top cover plate can be taken off the lamp house to adjust the mirror or get at the lamps, reflectors and ventilating system.

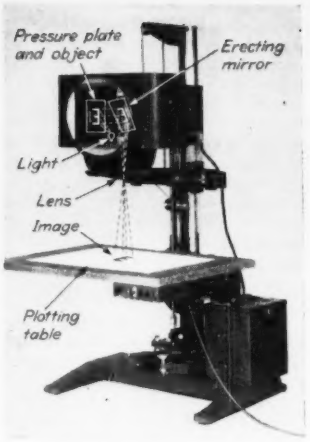


IMAGE APPEARS on 30x40-in. horizontal table in proper orientation.

For point-matching ease, the pressure plate—fixing the object photograph or map in position for the erecting mirror—can be rotated 20 deg. either side of center. The pressure plate has ¼-in. cross-lines etched on its surface to orient the object.

It is the interrelation of the two seemingly independent motions—of the lens carriage and the object carriage—that gives the instrument its unique automatic focusing. The mechanism is an adaptation of the Pythagoras Inverter, described by O. von Gruber.

Control by the autofocusing device permits small segments of non-rectified aerial photographs to be used for map matching. Normally, an aerial photograph to be used for plan projection must be rectified for tilt of the airplane camera at time of exposure. The new projector can compensate for this error at small angles by slight differential magnification of the individual points on the object photograph. Ease of autofocusing makes this instrument more than a projector. It is in a small degree a rectifying medium.

The author wishes to acknowledge the assistance of Gilbert G. Lorenz, chief, Photogrammetric Branch, and John Pennington and Frank McFarland, of the Photogrammetric Studies Section, Engineer Research and Development Laboratories, Ft. Belvoir.

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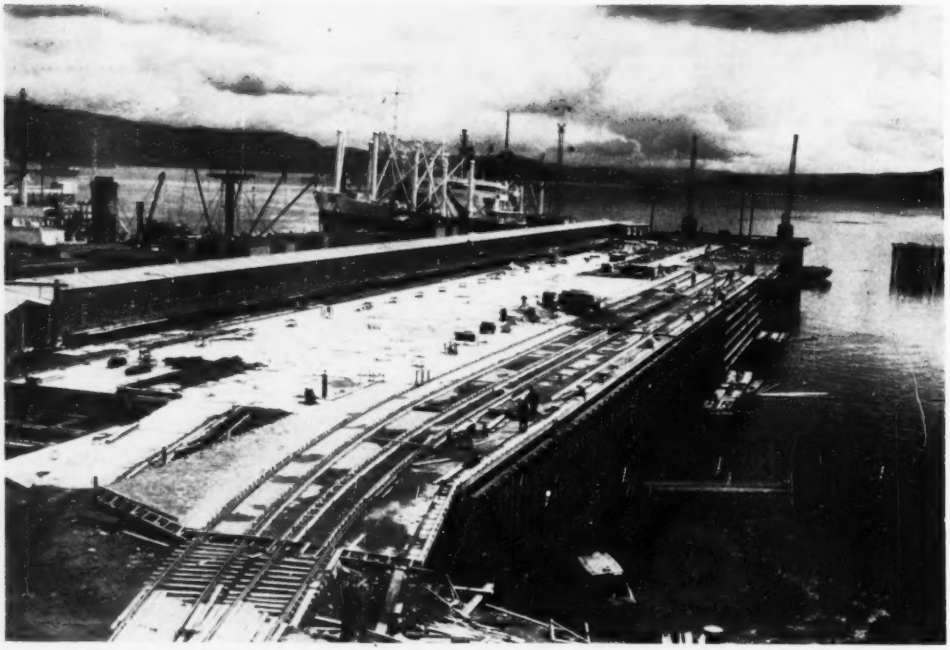


CANADA'S EIGHTH SEAPORT at Port Alfred, Que., gets new steel-supported wharf for handling aluminum products.

Wharf Resists Cold, Tide Extremes

TO HANDLE an increase of 280 percent in shipping at Canada's eighth largest seaport, the Aluminum Company of Canada has completed a long wharf for ocean-going vessels, far inland at Port Alfred, Quebec.

Located at the head of navigation on the Saguenay River, the wharf had to be designed to meet enormous extremes of river and weather conditions. Winter temperatures normally range between 30 and 40 deg. below zero for long periods; an estimated ice load of 525 lb. per sq. ft. must be sustained on the surface, and the river has a 24-ft. tidal range.

Builders and owners of the new structure are Saguenay Terminals, Ltd., the marine transport subsidiary of the Aluminum Company of Canada. The aluminum plant at nearby Arvida has become the largest aluminum ingot producing works in the world, and coincident with this development, Port Alfred now handles 2,650,000 tons of material yearly, compared with 700,000 tons in 1940.

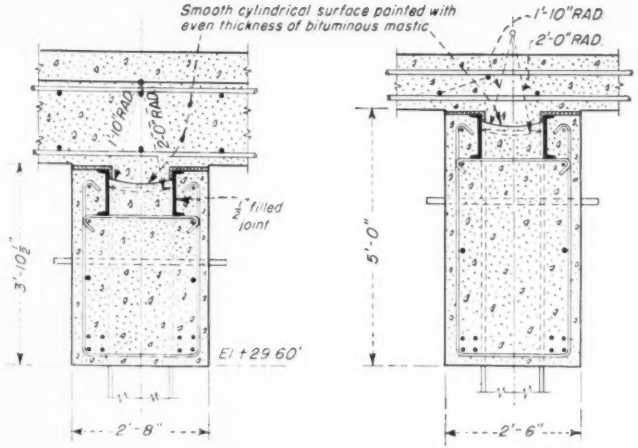
Basic raw materials for the metal processing at Arvida enter Port Alfred at the wharf and are transported to the plant over a 20-mile railway. Bauxite comes from British Guiana; cryolite from Greenland; petroleum-coke from the Gulf of Mexico ports, and many other products come from all over the world. Port Alfred also is the receiving depot for constantly increasing tonnages of machinery items and supplies for the plant and for commercial traffic of the contributing trades and crafts and the fast-growing population centers of the Saguenay Valley.

Shed made of aluminum

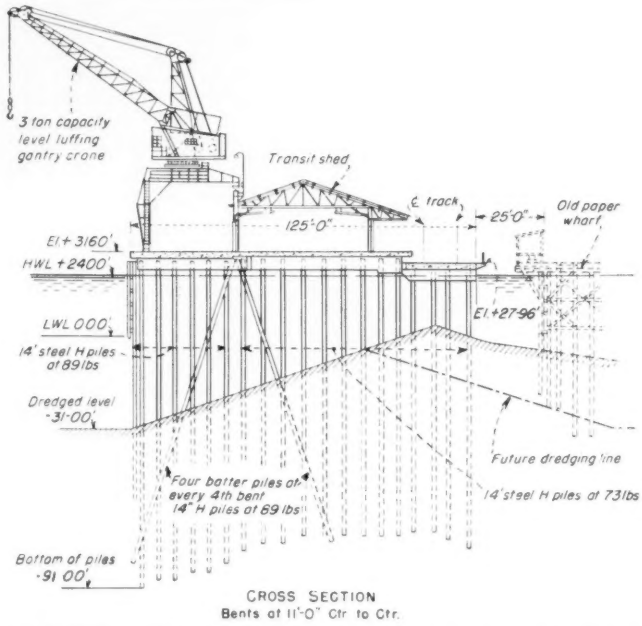
The wharf is 1,138 ft. long and carries a transit shed 1,023 ft. long, 51 ft. wide. The shed roof and walls are covered with corrugated sheets of aluminum alloy bolted to steel purlins and riveted together between the latter. The shed door openings 10 ft. high by 19 ft. wide have doors of all-aluminum construction in every panel.

Engineers developed a novel joint between the 125-ft.-wide concrete deck slab and the concrete capping-beam of the steel bearing piles, to permit deflection of the piles about their base. The base is assumed fixed in underlying soil, and so does not transmit any stress into the wharf-deck slab, such as would normally result from the ordinary monolithic type of wharf-deck construction. Company engineers said that this design feature has resulted in an appreciable saving of the quantity of reinforcing steel that otherwise would have been required.

Along one wharf face are two self-propelled, semi-portal gantry revolving jib cargo-cranes of the level-luffing type, with jibs counterbalanced at all radii from 65 maximum to 22 ft. minimum. They are capable of handling packages by hook up to 6,000 lb., pallets by a tong-type grab up to 10,000 lb., or a two-line grab bucket up to 8,000 lb. Since the jib itself is counterbalanced and since the load is not moved vertically, the luffing-motor acts only to overcome friction and inertia, and thus is considerably smaller than if it were required to lift the load. Tracks



JOINT BETWEEN BEAM AND SLAB is specially fitted to permit deflection of piles.


3 ton capacity level luffing gantry crane
Transit shed
℄ track
25'-0"
Old paper wharf
125'-0"
El. + 31.60'
HWL + 24.00'
LWL 0.00'
14" steel H piles at 89 lbs
Dredged level -31.00'
El. + 27.96'
Future dredging line
Four batter piles at every 4th bent 14" H piles at 89 lbs
14" steel H piles at 73 lbs
Bottom of piles -91.00'
CROSS SECTION
Bents at 11'-0" Ctr. to Ctr.

DEEP STEEL H-PILES carry the new wharf in a water-depth of 31 ft. at low tide.

for railroad cars are also included on the wharf deck.

The pile-capping beam is 2½ ft. wide and 3 ft. 9¼ in. deep under the track apron slab; 4 ft. 11 in. under the transit shed.

It is made sufficiently deep to provide adequate pile embedment for fixing the end of the pile in a lateral direction. It is also made sufficiently strong to distribute the deck loading laterally, assuming that if any two piles in the bent have settled to such a degree as to be unable to take any load, the beam will thus spread the load out to the remaining piles. The beam is reinforced with eight one-inch round bars at the bottom, while at the top two steel channels act as reinforcement.

A rocker-joint is formed in the top of the capping-beam, so as to give full support to the deck slab, while not transmitting any bending moment into the deck slab. This joint is cast on a radius of 1 ft. 10 in., and is stepped up in 2-in. vertical steps to provide shear resistance for any possible lateral or transverse movement between the deck and cap-beam.

The joint was painted with emulsified asphalt to break all concrete bond and act as a lubricant. Compressible material was placed between the outer edges of the beam and the deck slab, to permit binding and prevent movement.

The longest pile measures 135 ft. All piles were composed of two or more lengths, with the length of the longest section not exceeding 60 to 65 ft. This maximum was established because of shipping limitations and to accord with the basic price rate.

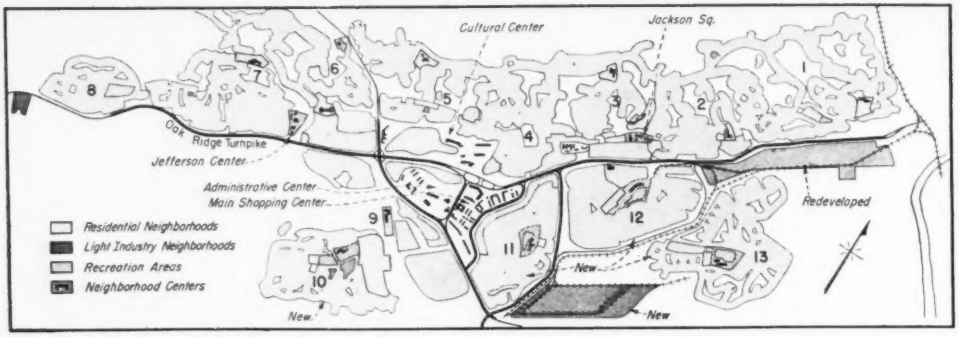
The Foundation Company of Canada, Montreal, were designers of the new wharf. Consulting engineers were Frederic R. Harris, Inc., New York. The Dominion Structural Steel Company, Montreal, did the steel work and the Carnegie-Illinois Steel Company of Pittsburgh the steel piling. W. L. Pugh, chief engineer for the Aluminum Company of Canada, represented the owner corporation in directing and coordinating the project.

Report Progress On Smoke Control

Only four U. S. cities of 250,000 population or more are now without smoke abatement regulations, as U. S. municipalities carry on a fight against air pollution.

According to a bulletin of the American Municipal Association, the ordinances are aimed at U. S. property damage estimated at millions of dollars per year, and "untold" damage to health of city dwellers.

Commenting that the success of the ordinance varies widely, the AMA said that in Pittsburgh, for example, the city's efforts to end the smoke nuisance has thinned the smoke screen by about 60 percent since the drive against air pollution started 14 months ago. Two cities—Milwaukee and Los Angeles—are tackling the problem on a county-wide basis, and many other cities, including Cincinnati, Detroit, Indianapolis, Louisville, New York, and Providence, R. I., have embarked on rigid enforcement schedules.



CAREFUL ALLOCATION OF SPACE at Oak Ridge, Tenn., will result in a group of self-contained neighborhoods.

Planning A Town For Atom Workers

John O. Merrill
Senior Partner,
Skidmore, Owings & Merrill
Oak Ridge, Tenn.

WORKING under conditions almost beyond the fondest dream of a city planning specialist, engineers for the Atomic Energy Commission are closely following a master plan for the evolution of Oak Ridge, Tenn.

The conditions are nearly ideal from the point of view of the planners: All property is owned by the United States Government; there is plenty of land available within the town boundaries for all essential land uses; the rough, hilly terrain precludes a more conventional, high-density land-use pattern; the town is only a few years old, and the characteristics of its residents are easily determined.

Briefly, the problem is to distribute comfortably a population of 36,000—which may reach an eventual 50,000—within a long, narrow valley roughly 8 mi. long by 3 mi. in width. Current development will entail construction of more than 2,000 new family dwelling units, a new shopping center and new schools, as well as extension and improvement of streets and utilities.

To understand the necessity for planning on such a scale, the brief history of Oak Ridge must be noted.

At the end of the war, when the AEC decided that the operations at Oak Ridge would continue as the key facility in its chain of installations, something had to be done to put the town on a permanent footing.

Adequate living conditions and facilities were needed. The city must also become increasingly self-sustaining, in response to the commission's policy of release of controls, reduction of subsidies, and increased resident participation in local government.

Three types of adjustments were needed: the temporary facilities of the war-built city had to be replaced or made suitable for permanent occupancy; a transition from government ownership and control to local self government had to be made, and the security barriers surrounding the city had to be removed. The master plan charts the course and provides the guideposts within which these adjustments are being made. It is not a blueprint for actual construction, but rather a guide to the town's growth and development. However, many of the changes are needed quickly because of the demand for new housing, schools, roads, stores and facilities.

General plan

A graphic presentation of the proposed physical arrangement of the city, as conceived by the master plan, is given in a general development plan. From it stems the programming for the extensive improvement work and from it will also come guidance for later progress of city development.

Eye-catching feature is the self-contained neighborhood, with patterns set up to match the rough contours of the land. Each neighborhood is designed to house about 3,600 persons, providing its own school, shopping and recreation areas.

The eight existing neighborhoods on the north are for the most part located on a steep, irregular terrain. The first residential construction was put in place in the central portion of this area. Here are the 3,743 permanent-type housing units that formed the original development. Many of these dwellings were carefully planned and present an attractive appearance. The master plan anticipates no major modification in this central area.

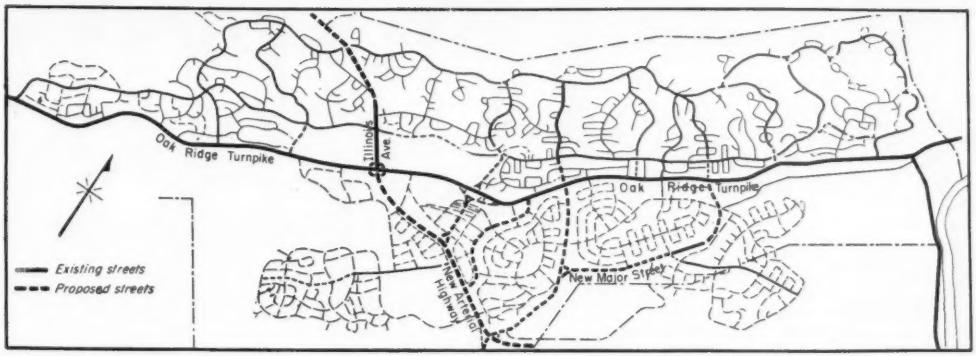
Adjoining this area both east and west are the temporary housing additions built during the latter part of the war. Here are located the major portion of 4,304 temporary dwelling units that may be gradually replaced through erection of new permanent houses, under a carefully scheduled replacement housing program. Also included in this area are 1,470 family housing units of temporary type that are adaptable for permanent occupancy, after considerable renovation.

The general development plan presents the outlines of five entirely new neighborhoods south of the Oak Ridge Turnpike. The three westerly areas are the scene of the current single, duplex and multifamily construction, and the other two are reserved for future development, possibly by private interests, in the event the city expands from its 36,000 population.

Service facilities and private industrial enterprises now dispersed through the area are to be concentrated in two light-industry districts: one in the eastern part and one in a midway area.

Other main land allocations provide for a new town center that will include a 108-acre main shopping center, a new administrative center for government and municipal functions, and a cultural center including a 1,500-student high school.

The matter of local industry is not of great concern, other than to provide



CAREFUL PLANNING OF STREETS will give the new city a series of traffic-free internal neighborhood groups.

space for service industries.

About 12,500 family dwelling units and accommodations for 2,800 single persons could be located in the areas allotted for housing, without overcrowding and with sufficient areas available for schools, roads, churches, recreation, community services, and neighborhood shops. However, a temporary quota of 9,600 permanent-type dwelling units has been set. This may be adjusted later.

Housing details

About 72 percent of the ultimate number of family dwelling units are to be single or two-family residences. Multifamily housing, in the form of row-type or apartment groups, is to be located in the center of several neighborhoods and along some relatively level stretches closer to the turnpike.

The neighborhood pattern of family living calls for shopping facilities within convenient distance of the dwellings for day-to-day purchases and community services. The general development plan thus recommends that small shopping centers be provided for each neighborhood. Three larger shopping centers already exist.

A significant peculiarity of the Oak Ridge population is the extremely high ratio of young children to total population, and high ratio of young couples to old couples. In planning the facilities for the school system, therefore, the master plan has taken these conditions into account by recommending facilities for the relatively large school population in terms of long-range needs rather than peak needs, so as not to overbuild for the time when Oak Ridge family composition comes closer to national averages.

Thirteen elementary schools, two junior high schools, and one senior high school are recommended. Size of elementary schools will be kept to a maximum of 500 pupils wherever possible. The schools are located within one-half mile walking distance of each dwelling and accessible without crossing major traffic flows.

Transportation

The highway system of Oak Ridge, including the present network of traffic arteries and the proposed system for the redeveloped town, will be divided into four classifications: arterial highways, major streets, secondary streets, and minor streets and lanes.

Arterial highways and access roads have been integrated with state and county highways to provide the principal communication with the surrounding area. It is proposed that on arterial highways intersections be reduced to minimum intervals of one-half to one mile, with residential properties facing away from the highways onto local minor streets. Right of way of 250 feet is suggested to accommodate two two-lane pavements of 22 ft. in each direction, with a center dividing strip of 30 feet and two 88-ft. planting strips.

Major streets are located along the boundaries of neighborhoods, freeing the residential areas of through traffic hazards.

Secondary streets will take care of the considerable amount of local traffic and will handle inter-neighborhood traffic circulation. Wherever feasible, an 80-ft. right of way is recommended to accommodate four lanes of traffic, or two lanes of traffic and two parking lanes, with space for sidewalks and planting. In new areas, the master plan recommends that the minor streets be provided with a 50-ft. right-of-way, sufficient for two or three traffic lanes.

Extensions of the Louisville and Nashville Railroad, and the Southern Railway enter the Oak Ridge reservation, but only the L & N serves the town itself. The community does not have a passenger station, but one may be built, if needed, near Edgemoore entrance.

With certain minor improvements, it was found that the existing systems of water supply, sewerage, sewage disposal, electric power and central heating could be economically extended to serve contemplated future needs.

Utilities

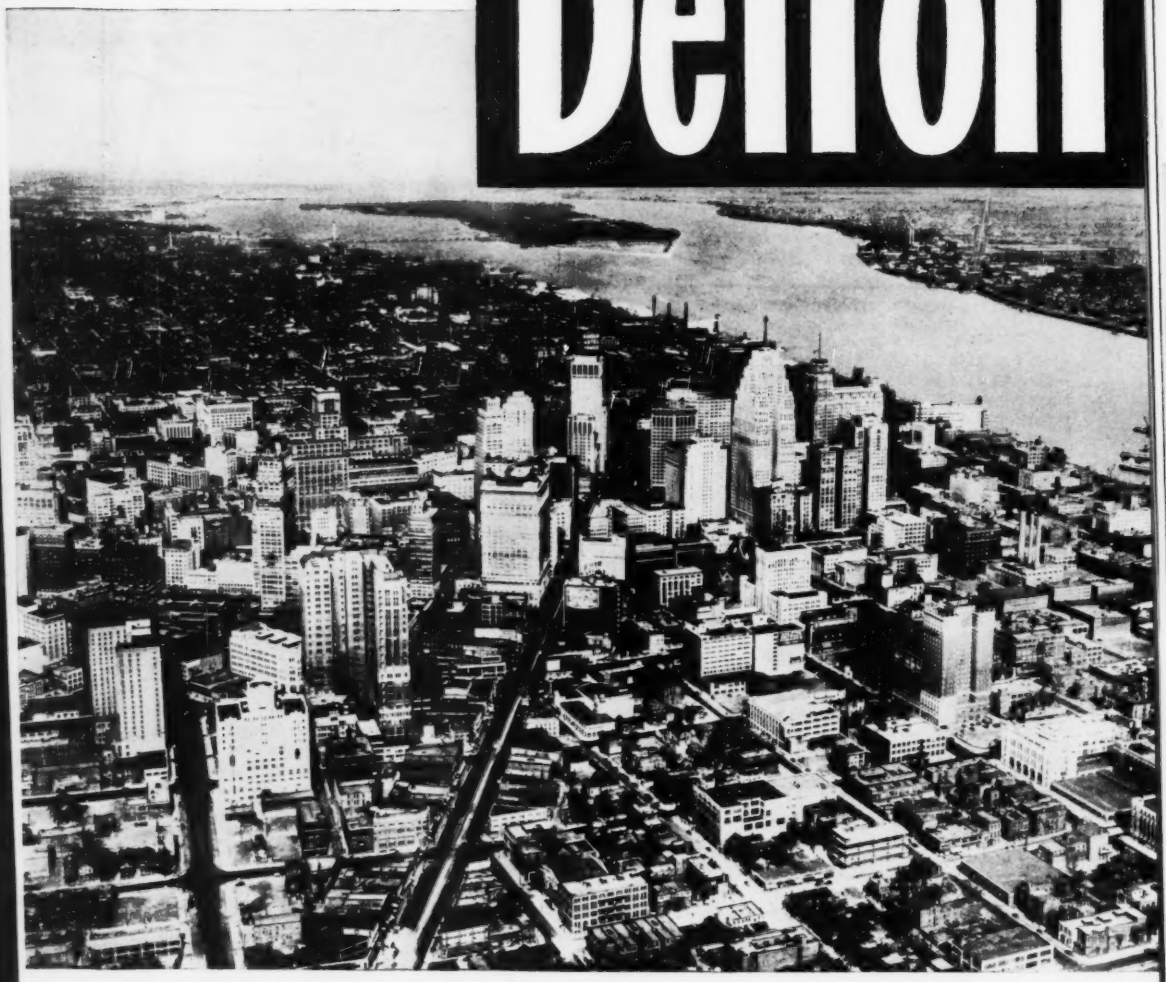
The water pumping station, supplying water from the Clinch River, has a daily capacity sufficient for a town of 50,000 population, and the water treatment plant can produce over 9 mgd. A new 30-in. water main is now under construction to supplement present facilities, and other adjustments are being carried forward for fire protection.

The two existing sewage treatment plants are generally adequate to take care of estimated peak flows. The easterly plant is of the activated sludge type, discharging a highly treated effluent to the Clinch River, and the westerly plant provides primary treatment only and discharges a partly treated effluent to Poplar Creek.

The importance of public recreation is recognized through a carefully conceived pattern of recreational facilities. The basic recreational units are playgrounds located at the elementary school in each of the thirteen neighborhoods.

A final report on the Oak Ridge Master Plan was completed last December by Skidmore, Owings and Merrill, architects-engineers to the Atomic Energy Commission. Participating in this work were a board of planning consultants consisting of: Tracy B. Augur, urban planning officer, Federal Works Agency; Leon H. Zach, Chief of Planning Branch, Office of the Chief of Engineers, and the author.

Detroit



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THAT'S WHY so many cities — large, medium and small — are using more and more Allis-Chalmers equipment today. Detroit's sewage pumping stations and disposal plants for years have used Allis-Chalmers synchronous motors and transformers. One water works pump station is equipped with a battery of A-C centrifugal pumping units.

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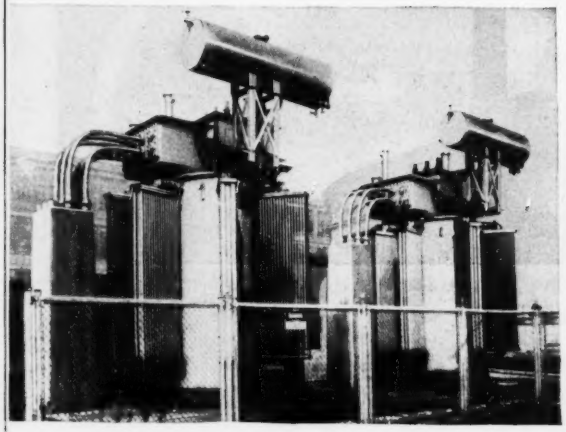
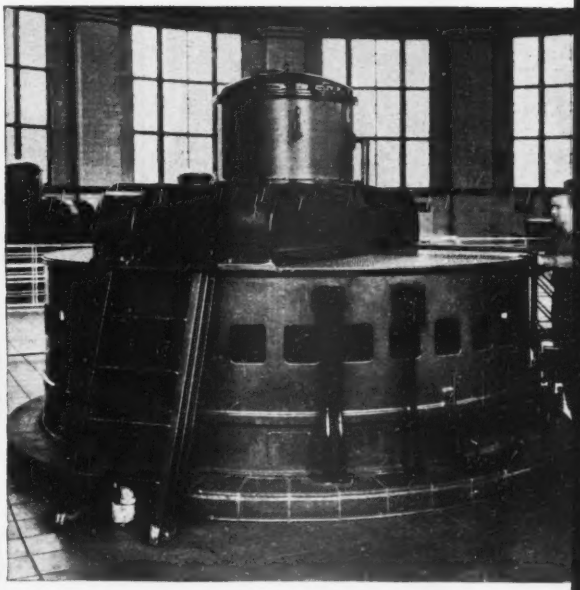
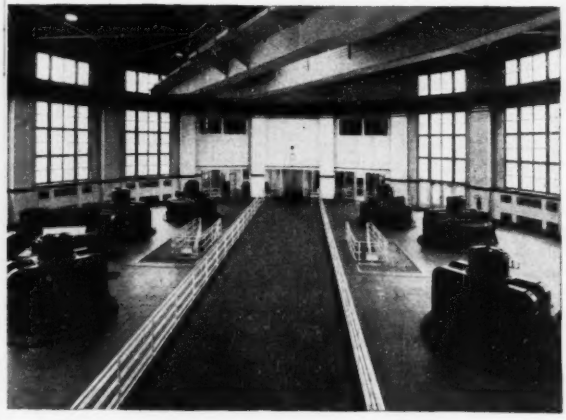


THESE "Old Faithfuls" have given dependable service in Detroit's public works for many years. Today, new Allis-Chalmers transformers can be equipped with Load Ratio Control devices to provide close voltage regulation during the hours of peak load and low load pumping periods.



CIRCULAR shaped Detroit sewage disposal plant pump room is equipped with six Allis-Chalmers synchronous motors. Your community can *save money* by taking advantage of Allis-Chalmers experience in designing and building both electrical and mechanical public works equipment.



1250 HP synchronous motors drive sewage pumps in Jefferson Avenue sewage disposal plant. Allis-Chalmers has designed and manufactured all sizes and types of motors and turbines for driving centrifugal pumps for all sizes of communities all over the country.

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FIELD AND OFFICE

PEOPLE WHO LIVE IN GLASS HOUSES can now study best positioning of homes for solar heating with models.

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Width of roof overhang and correct compass orientation of solar houses can readily be determined by use of Libbey-Owens-Ford Glass Co.'s new "Solarometer." Exact sun-earth positions can be reproduced in a few minutes for any locality and any time—hour or season.

Demonstrated for the first time at the recent National Association of Home Builders' exposition in Chicago, the simply operated device is said to replace in illustrative value the many drawings now necessary to show the prospective builder the proper placement of his solar house.

Developed in response to increased demand for information on achieving highest solar-heat efficiencies, the "Solarometer" shows how best to situate a house to make use of the sun's rays in winter and shade these rays in summer. By adjusting the "sun" on a graduated scale, the operator can observe how its rays strike glass areas of a model solar house.

COMPACTION OF CONFINED AREAS is effectively accomplished by mounting sheeps-foot rollers both in front of and behind a tractor. Either or both of the rollers can be lifted out of the way with power from the tractor winch. Developed by J. O. Archibald, Redwood City, Calif., contractor, the rig is a useful addition to the equipment list of grading contractors.

H-Pile Hits Bottom; Here's What Happens

This pile had to be extracted from the foundation of the new Kennebec River Bridge at Augusta, Maine when its head got locked under the boot of the hammer. It is a 45-ft.-long 14-in. 89-lb. H-beam.

When the pile was removed, condition shown was found. For the last four feet of driving, pile had been going at the rate of ten blows to the inch. The bottom indicated on the borings was micaceous gneiss, and pieces of this rock weighing as much as 8 or 10 lbs. were found more than three feet above the end of the pile.

As can be seen, the lower end of the pile was badly battered, with flanges doubled-in. On the other side, a piece of flange was torn away entirely for a distance of ten inches from the end.—Howard B. Fleming, W. H. Hinman, Inc., North Anson, Me.

PILE-END CONDITION, revealed when pile had to be extracted.

Ford Plant at Buffalo Valued at $50 Million

Ford Motor Co. has bought 100 acres near Buffalo for a manufacturing plant whose cost is estimated at close to $50,000,000. Nearby, the Bethlehem Steel Co. will expand its continuous sheet and strip mill, so as to provide Ford the adequate and continuous supply of steel Ford sought in choosing the Buffalo site. Capacity of the cold-rolled steel mill will be doubled at a cost of several million dollars.

There's a Profitable Idea for You in—

The Case of the Old Offender

Draftsman: "You old reprobate, you spoiled a two hundred-dollar drawing! Look how brittle and opaque it is!"

Father Time: "Yes, but you drew it on tracing paper — when you should have used Arkwright Tracing Cloth!"

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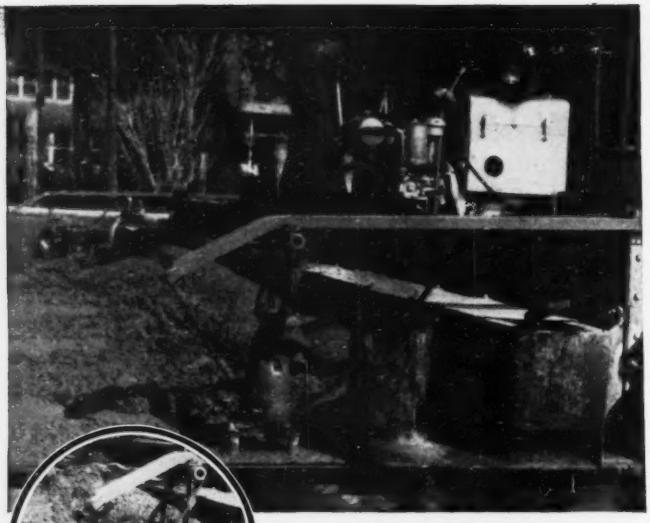

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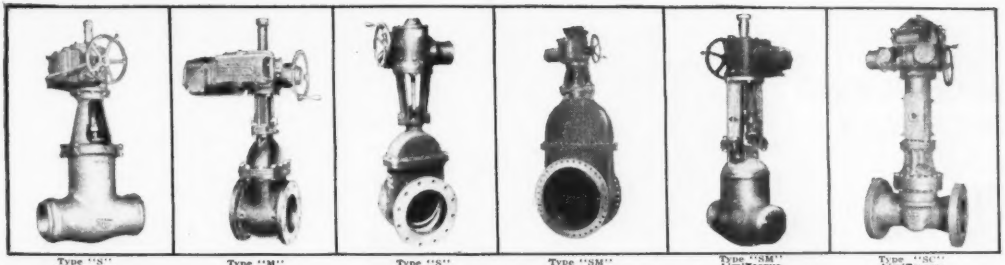
(Continued on page 56)



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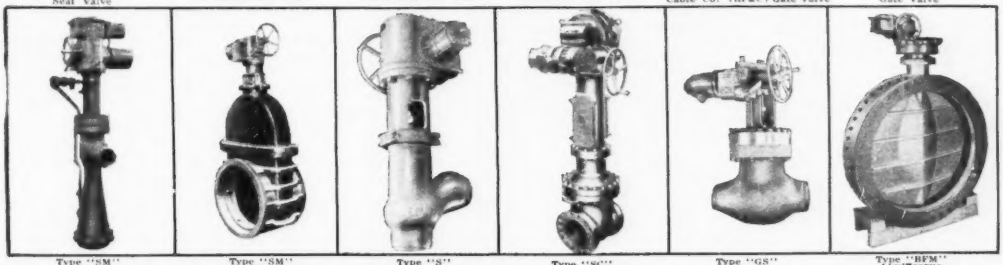

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Type "SM" LimiTorque on Rensselaer Inside Screw Gate Valve

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Type "SC" LimiTorque on Powell Gate Valve

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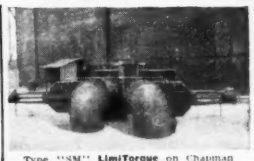

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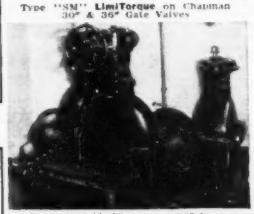
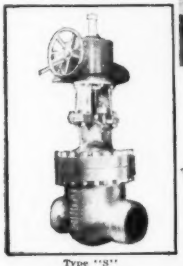


Type "M" LimiTorque on 24" Iowa Gate Valve



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DEUTSCHER AUSSCHUSS FUR STAHLBETON. Wilhelm Ernst & Sohn, Berlin, Germany. 13 D.M.

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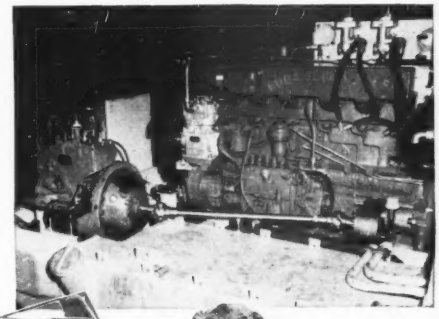

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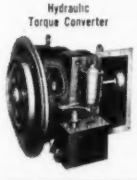

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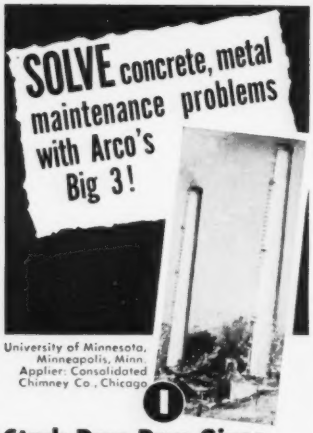

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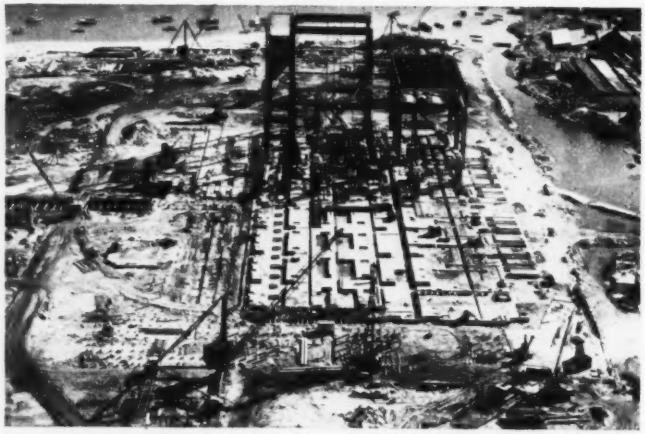

CONCRETE RAFT, three acres in area and weighing 150,000 tons, carries this steam-electric power station at Poole, on England's southern coast. (Sir Robert McAlpine & Sons Photo)

England—Another new British power station—at Poole, near Bournemouth, on the south coast of England—had its cornerstone laid recently on a foundation as massive as any yet poured for such a structure in the U. K.

The Poole Station, which will have a capacity of 200,000 kw. when completed in 1951, is being built on a site of about 30 acres reclaimed from the mudflats of Holes Bay.

To support the turbine house and most of the boiler house, an area of about three acres has been excavated to a depth of 30 ft. The excavation has been filled with a solid block of concrete 500 ft. long, 248 ft. wide, and from 15 to 30 ft. deep, containing approximately 89,000 cu. yards—perhaps the largest single concrete slab ever formed in Britain—weighing some 150,000 tons.

The rest of the structure is supported on some 2,000 reinforced concrete piles, many of them 40 ft. long. The two 325-ft. chimneys each required a cluster of 168 piles, 40 ft. long, supporting concrete foundation blocks 50 ft. square.

The working level of the whole site has had to be raised, by dumping 250,000 tons of chalk; access roads had to be built to bring in the generating plant and machinery; and a wharf frontage 1,000 ft. long had to be constructed to accommodate the fleet of 1,500-ton colliers specially built for the station, since it will burn up to 15,000 tons of pulverized coal per week.

There will be eight large boilers in the boiler house capable of evaporating 134 tons of pure water to steam every hour. About 8 mg. of cooling water an hour will be required when the Poole Station is running on full load. The pumps being installed, however, will be capable of handling 10 mg. an hour.

Commissioning of the first turbo-generator set of 50,000 kw. will take place toward the end of 1950.

The new station at Poole had its inception prior to nationalization. The project-design was the work of the former Bournemouth and Poole Electricity Company Ltd., in conjunction with the former parent company, the County of London Electric Supply Company Ltd., under arrangements approved by the old Central Electricity Board. The Southern Division of the British Electricity Authority assumed responsibility for the project on vesting day, 1st April, 1948.

The main contractors are as follows: Consulting engineers, Merz and McLellan; civil engineering consultants, Mott, Hay and Anderson; building and civil engineering work, Sir Robert McAlpine & Sons Ltd.; structural steelwork, Alexander Findlay & Co. Ltd.

Highways

Mexico—A recent experience has shown how roads pay for themselves. For many years traffic between Mexico's two populous centers—Mexico

City and Guadalajara—was handled by a northern and a southern route, traversing an area of fertile black soil. But—because no farm or feeder roads ran into these highways—little farm produce was carried on them.

Recently a 900,000-peso ($180,000) connecting road between the two routes was constructed from Zamora on the Southern to La Barca on the Northern Highway. Funds for the construction came in equal parts from the federal government, the state government and the individuals served by the road.

Results of the enterprise: An area of 200,000 acres was opened up to agriculture. Within a year after completion of the first 25 miles of the 34 miles planned, more than a million boxes of tomatoes came out of the new fields, to be sold to both Mexican and foreign buyers.

In the same period, the number of cars in Zamora increased from 261 in 1947 to 461 in 1948. Gasoline tax revenues going to the government rose during that time and almost completely redeemed the government's share of the construction. The road is now in its second year of operation.

Power

Japan—Construction will begin this year on a 33 project, five year program to expand Japan's hydroelectric generating capacity. Approval for the proposal of the Japanese government has recently been granted by the Economic and Scientific Section, Supreme Commander for the Allied Powers.

The 33 installation will add 1,100,000 kw. to Japan's generating capacity.

Cost of the program is estimated at near $730 million at present prices. The government hopes for permission to use part of counterpart fund which has been established to balance U. S. aid to Japan. Additional funds are expected to come from the Ministry of Finance bond issue and re-investment of earnings of the government-owned Japan Electric Generation and Transmission Co.

All equipment will be procured in Japan as will materials.

France — Construction of hydro power projects under the control of the governmental agency, Electricite de France, has had to be slowed down because of budgetary limits imposed by the Minister of Finance.

Three particularly important jobs are involved: Bort on the Dordogne River; Tignes on the Isere River in the Alps; and Ottmarsheim, on the Rhine. In the meantime, work continues on the Donzere-Mondragon project on the Rhone.

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MUNICIPAL AFFAIRS

BIG PIPE—Sections of 60-in. iron and concrete conduit are being installed east of Phoenix, Ariz., as part of the city's water expansion program. Vinson Construction Co. of Phoenix holds the $214,000 contract for installation of the 6,300-ft. line to parallel two 36-in. lines now bringing water from its filter plant and wells on the Verde River.

More Parking Problems

The plans of Detroit, Mich., for a municipal parking garage under downtown Washington Blvd. have been seriously threatened by a recent engineering report.

Prof. William Housel, of the University of Michigan, who was employed as a special consultant by the city, contends that shifting soil at the proposed site would result in gradual sinking of adjoining buildings. The Parking Authority, in the hope of overcoming his objections, has submitted revised plans to Housel calling for either concrete or steel bases for the garage.

Either type of support would add about $600,000 to the estimated $3,500,000 cost of the garage. The $500,000 donation of interested downtown merchants was contingent upon contract letting by July 1. Detroiters believe this deadline is impossible to meet and doubt that money can be raised anywhere else to replace that gift.

Civic parking commission

In an effort to solve some of its parking problems, Vancouver, B. C., has established a civic Parking Commission to manage and develop downtown parking lots.

The commission, which at first operated unofficially following granting of a charter amendment for its formation by the provincial legislature, is headed by Alderman R. K. Gervin, as chairman.

Set up by civic by-law, the commission faces the problem of establishing parking lots to offset two factors causing acute parking congestion in the business area—a great increase in motor traffic and elimination of whole blocks of curb parking because of a bus transit system which has made necessary wider traffic lanes and space for stops.

Six downtown lots are planned to accommodate 5,000 cars. The first is scheduled to go into operation this summer. Sites have been selected. The properties committee of the city council is working with the parking commission to acquire the lots, which probably will be leased for operation to the Downtown Parking Corporation, Ltd.

More parking meters

Aurora, Ind., has decided to install parking meters in the business area on a six months' trial basis, leaving only Indianapolis and a few other Hoosier cities without the coin devices. Akron, Ohio, city council has authorized the purchase of 300 additional parking meters, to be used in the North Hill and Ellet districts. They will operate on either a penny, nickel, or dime.

Building Code Changes

A $250,000 holiday fire which destroyed 13 buildings and 20 cars may get Revere (Mass.) Fire Chief Thomas McCarrick the new building code he's been seeking.

The fire, of unknown origin, swept the Oak Island section of Revere Beach. McCarrick wants the code revised for the entire beachfront to forbid the use of wood in future construction. McCarrick, who'd sought such code revisions before, said the July 4 blaze ought to be all the example the city needs to justify a new beachfront building code.

In Louisville, Ky., a new building code was to be in effect by Aug. 1. It would replace a code written in 1926. Work on a new code was begun in January, to be carried on by the city's Works Department staff. A revised heating and ventilating code already has been approved, and a revised electrical code was due for action this month.

Akron, O., followed Cleveland's lead in breaking a deadlock over a new building code. Stymied for more than two years, the deadlock was broken when Council decided to drop from the new code provisions requiring the licensing of workmen as well as contractors. The provisions, which had been sought by the AFL plumbers union, were to be incorporated into a separate ordinance.

Ohio's Greene County Real Estate Board, at Xenia, wants a county-wide building code.

Sewer Projects

Four cities are in the news this week, in connection with sewer project proposals.

The "Wilmington Sewer Revenue Bond Act of 1949," has become a law in Delaware. It empowers Wilmington to proceed with its $7,000,000 sewer interceptor system to end that city's contribution to the pollution of the Delaware River. The federal government already has advanced $175,000 for the preparation of a plan which took nearly a year to complete. This money will be returned to the government out of the bond issue funds.

Agreements are being studied under which various political subdivisions around Roanoke, Va., will be invited to participate in the sewage disposal plans which would eliminate raw sewage from the Roanoke River in that area.

Village and town municipal executives have received a report from Nussbaumer & Clark of Buffalo, N. Y., consulting sanitary engineers employed by Elmira, N. Y., on costs of sanitary sewer systems. These will be studied by the respective boards and action taken on whether to form a larger sewer authority or smaller individual groups. The engineers estimated trunk sewers through Elmira and increased sewage treatment facilities would cost $1,911,350.

(*Continued on page 62*)

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Proposed construction of a $1,100,000 sewage disposal plant at Cheyenne, Wyo., apparently will be delayed as the result of a suit filed in Laramie County district court to prevent the city from issuing revenue bonds to finance it. Opponents charge that the city ordinance under which the bonds were voted recently is unconstitutional, and that issuance of the bonds would put the city's indebtedness above the legal limit. The action also asserts the proposed service charge to pay plant costs and bonds is in violation of the state constitution. It was indicated that if the district court decides in favor of the city, the case would be appealed to the state supreme court.

Self-Sustaining Garbage

In its first half year of operation, the Sarasota, Fla., city garbage and trash collection fee of $1 per month has wholly paid for the service, officials said recently.

It cost the city $26,890 to maintain the service; collections were $30,408.

The latter figure is not entirely accurate, officials said, because it includes a number of persons who paid for the entire year in advance, and office expense for collection has not been deducted.

Under the service planned, the city's seven trucks pick up garbage and trash for disposal. The service charge was put into effect last November, over the bitter opposition of many citizens who objected to paying for a service they thought the city should furnish free of charge. However, city officials at the time demonstrated that the city was facing a financial deficit and might have to curtail garbage collection service if the system were not approved.

Arterial Route System

A master plan for development of a 9.14-mile arterial route system for New Rochelle, N. Y., to lessen congestion arising from the extremely heavy traffic movements into and through that New York suburban city has been presented by New York State to officials of New Rochelle and Westchester County.

Estimated to cost $10,818,000 at current prices, the proposed plan would provide modern scientifically designed highway facilities to remedy traffic ills that now threaten the economic future of the city. The total cost to the city is estimated at $1,599,000—one-half the cost of the required rights of way. All other costs would be borne by the state.

Coordinated with this master plan is the New England Thruway which is planned as a limited access express highway from the Bronx in New York

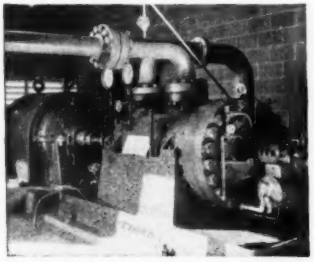
FIDO BLAZES NEW ERA OF AVIATION SAFETY

FIDO, born in war, guards against fog

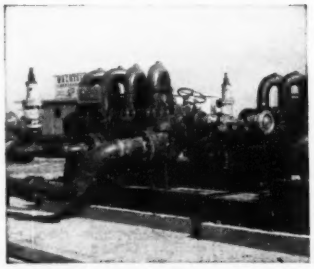
Mayor Fletcher Bowron lit the pilot light and Los Angeles was cooking on the front burner in world aviation circles at the inauguration of FIDO (Fog, intensive dispersal of) for the Los Angeles Municipal Airport.

Pushing a bright red button, the Mayor flashed on Los Angeles' $842,000.00 fog dispersal system and this field became the first all-weather commercial airport in the world. Brilliant orange flames leaped up simultaneously into the dusk from the burners outlining the approach and runway.

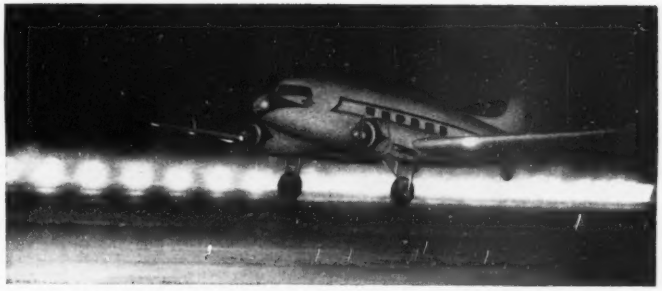
Backed by 5 millions spent in research by the Army, Navy, and civilian interests,



BYRON JACKSON "FIDO" PUMP INstalled at Los Angeles Municipal Airport.



ORIGINAL BYRON JACKSON "FIDO" pump installed at Arcata, Northern California, in 1945.



PLANELOAD OF NEWSMEN AND PHOTOGRAPHERS MAKE PERFECT TOUCHDOWN while Los Angeles FIDO system singes off imaginary fog in first acceptance test of fog dispersal system. FIDO system pumps cheap diesel fuel to atomizers spaced along 6,000-ft. flame rows.

FIDO assures airport operation at zero ceiling. The sky-pointed flame throwers are designed to burn off fog to heights of 400 feet in the 2000-foot approach zone, to 250 feet in the 1000-foot landing zone, and from 75 to 300 feet over the 3000 feet of remaining runway.

More than six miles of fuel pipelines outline the FIDO landing area. The heart of this system is located in a small quonset hut. Here, the Byron Jackson 1000 hp FIDO Pumps keep a pressure of 1200 pounds per square inch in the system. The pressures involved make possible complete combustion and the height of flame at the atomizers.

In lauding the Board of Airport Commissioners and others who had worked out this latest safety device for aviation, Mayor Bowron declared it is "this spirit which is hastening the day when we will have the world's safest airport."

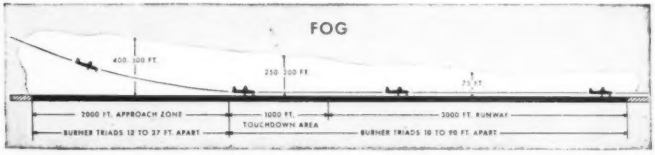
"Air travelers throughout the world," said Bowron, "soon will know they will always land on schedule at Los Angeles."

This advertisement conforms to the splendid coverage given this event, March 30, 1949, by the Los Angeles Daily News.

MAYOR FLETCHER BOWRON LIT THE pilot light that made aviation history. With him (right) is Col. Clarence M. Young, General Manager of the Los Angeles Municipal Airport.

Byron Jackson Co. designs, builds, and installs every type of centrifugal pump for city, farm, and industrial requirements. For complete information, write for illustrated BJ Bulletins describing the pumps you need.

Byron Jackson Co.
Since 1872
LOS ANGELES 54, CALIFORNIA
Offices and dealers in principal cities



THIS IS HOW LOS ANGELES MUNICIPAL AIRPORT'S FIDO SYSTEM WILL BURN away zero ceilings, permit planes to land with safety, and effect bad weather economies.

...Koppers Fire-Retardant Wood

The effectiveness of Koppers Fire-Retardant Wood has been dramatically demonstrated under actual fire conditions, as well as in exhaustive tests conducted by the Underwriters' Laboratories, Incorporated.

For example, the roof structure and columns of the Baltimore industrial plant pictured here in the early stages of construction were built with fire-retardant wood. The value of this treatment was proved conclusively when a sudden, fierce fire was quickly brought under control and extinguished . . . with no serious structural damage resulting.

Koppers Fire-Retardant Wood pays dividends even if you never have a fire. Koppers CZC (FR)—the new and improved Koppers fire-retardant treatment—fortifies wood against decay and termite attack. And where treated wood is exposed to leaching, Koppers Flame-Resistant Sealer may be used to seal salts in and moisture out, thereby maintaining a high degree of protection indefinitely.

Send for our free book, "Koppers Fire-Retardant Wood." It tells how this "Built-in Fire Insurance" can protect your buildings and bridges.

KOPPERS · PRESSURE-TREATED WOOD

KOPPERS COMPANY, INC., Pittsburgh 19, Pa.

City to the Connecticut state line at Port Chester.

The plan includes an interchange with the Hutchinson River Parkway near Kewanee Road and Pine Brook Boulevard.

Ohio Urban Redevelopment

Gov. Frank J. Lausche of Ohio is expected to approve the urban redevelopment bill recently passed by the legislature, to enable cities of that state to eliminate slum and blighted areas from their downtown sections.

The procedure required under the act involves: City Planning Commission first must approve a general plan to redevelop certain areas (minimum, four acres); complete data covering the area's characteristics and the general nature of adjacent territory must be put into concrete form; a redevelopment plan must be drafted; city council must make a suitable relocation plan for displaced persons, who are entitled to homes comparable to those they are forced to vacate; and at least two public hearings must be held on the redevelopment legislation before passage by a city council.

Financing may be from available tax revenues or through a bond issue, and the bill allows an extra 2 percent leeway for cities which have about exhausted their bond issuing power. If bonds are issued, a 55 percent vote of the people is required for approval.

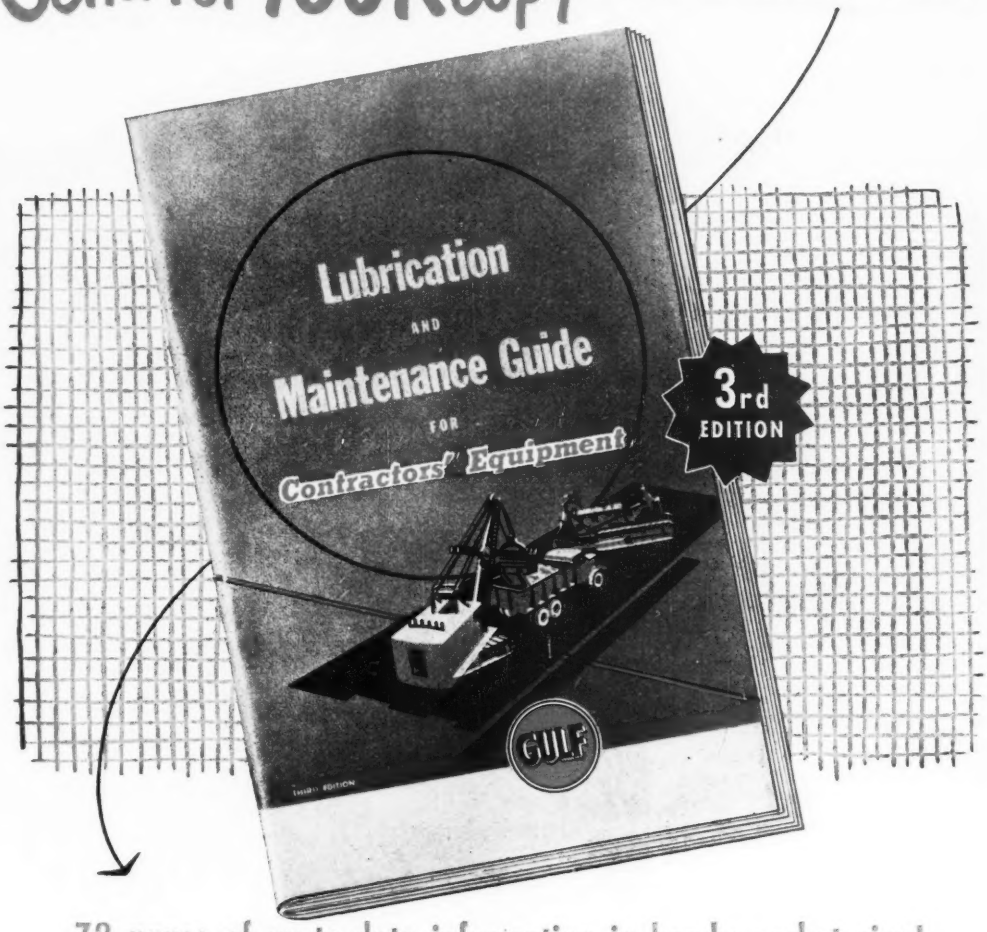
MUNICIPAL BRIEFS

Library Addition—Construction of a proposed $3,000,000 addition to the public library at Milwaukee, Wis., may begin next year. It would face W. Wells St. N. 8th.

St. Petersburg Housing—City council of St. Petersburg, Fla., has approved the construction of a 500-unit apartment house project to be built at a cost of $2,250,000 on 4th St. N. between 50th and 60th Sts. It will be partly financed through the FHA. There will be 20 buildings.

Metal Houses—City council of Columbus, Ohio, has lifted a 3-week ban on Lustron Corp. metal houses, which are made in that city. The council restored a building code provision allowing transite flues, instead of brick chimneys. At the same time, it took action to allow residents of high value neighborhoods to protect their property by approving a new residential zone—A-1-A—obtainable by petition. This provides that a single dwelling located in the zone shall have not less than 1,500 sq. ft. of floor space, and must be located on a lot containing a minimum of 4,800 sq. ft.

Send for YOUR copy of this valuable book



72 pages of up-to-date information in handy pocket size!

JUST OFF THE PRESS, the new revised edition of this popular Guide is chock-full of the latest facts on how to properly lubricate and maintain your vital mechanized equipment. It has been especially prepared by Gulf Lubrication Engineers with the sincere hope that it will prove helpful to you and your organization. It is easy to read and authentic in every detail. For your copy of this useful book, fill in the attached coupon.

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Please send me, without obligation, my free copy of the new revised edition of "Lubrication and Maintenance Guide for Contractors' Equipment."

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MASTER CARPENTRY MATHEMATICS
. . . and save time, effort and money

This manual helps you

- ▶ **Figure dimensions, materials, etc. more quickly**
- ▶ **Make more accurate estimates for bids**
- ▶ **Keep accurate business records**

THIS BOOK explains in simple terms the math every contractor and carpenter needs to know. The basic arithmetic of decimals, fractions, percentages and mensuration is applied throughout to everyday carpentry problems like calculating dimensions of a structure, ordering lumber and hardware, computing costs of labor and materials, and keeping accurate records.

Just Published! New, Second Edition

CARPENTRY MATHEMATICS

By J. Douglas Wilson and Clell M. Rogers

249 pages • 5½ x 8 • 116 illus. • $3.00

AFTER explaining basic fundamentals, this manual provides you with 595 self-quiz questions that apply the essentials of carpentry math to construction problems ranging from laying out, spacing and framing to estimating requirements for plaster, cement, nails and lumber.

APPLIES MATH TO JOB PROBLEMS

It gives you a thorough review of basic arithmetic and of mathematics as you put it to actual use on the job. Answers to all questions are included so you can check your own accuracy.

Because the book progresses step-by-step from fundamentals to more advanced calculations, you can start in working with it at any point. Explanations are clear and direct, and are illustrated with numerous photographs and diagrams.

SHOWS YOU HOW TO USE MATH IN—

- Estimating time, labor, materials
- Using steel square
- Reading blueprints
- Drafting plans
- Ordering lumber, hardware, etc.
- Timekeeping
- Checking bills
- Paying out

INCLUDES USEFUL TABLES

On-the-job reference tables and formulas supply you with basic data like: lumber costs, lumber reckoner for board feet, nail and tack sizes, shingle coverage, formulas for perimeters and areas of squares and rectangles.

Put this guide to more accurate carpentry mathematics to work for you today!

10 DAYS' FREE EXAMINATION

McGRAW-HILL BOOK CO., INC.
330 W. 42nd St., New York 18

Send me Wilson and Rogers's Carpentry Mathematics for 10 days' examination on approval. In 10 days I will remit $3.00, plus few cents for delivery, or return the books. (We pay for delivery if you remit with this coupon; same return privilege.)

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MEN AND JOBS

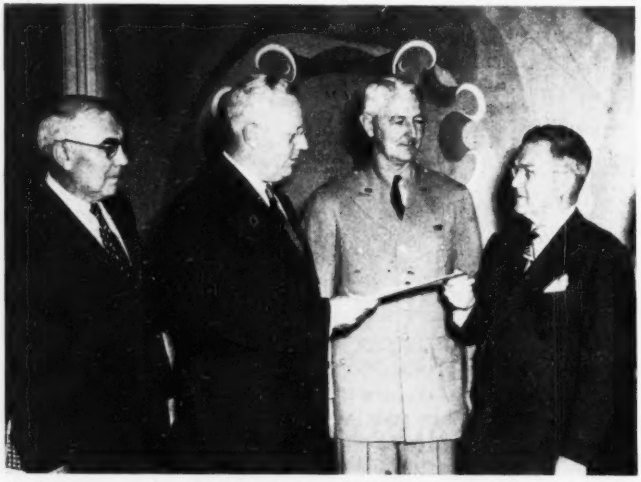
William E. O'Brien, until recently project engineer for Associated Universities, Inc., on the Atomic Energy installation at Brookhaven, Long Island, has joined Fraser, Brace and Co., engineers and constructors, 10 East 40th St., New York City. He will be associated with Harry Englander, general manager. Mr. O'Brien, a graduate of Rensselaer Polytechnic Institute, 1921, was engaged in the design and construction of steam and hydro-electric projects in various parts of the United States and Mexico. During the war, he was with the War Department on the construction of ordnance and chemical warfare plants and later was with the rubber director on the construction of synthetic rubber plants. He also has been retained to work as consultant at Brookhaven Laboratory until completion of that project.

Mayor Bernard Samuel of Philadelphia signals for opening of the sluice gate to divert the waters of Frankford Creek as a flood preventive measure. Thomas Buckley, director of public works looks on while other officials and a group of citizens watch the proceedings.

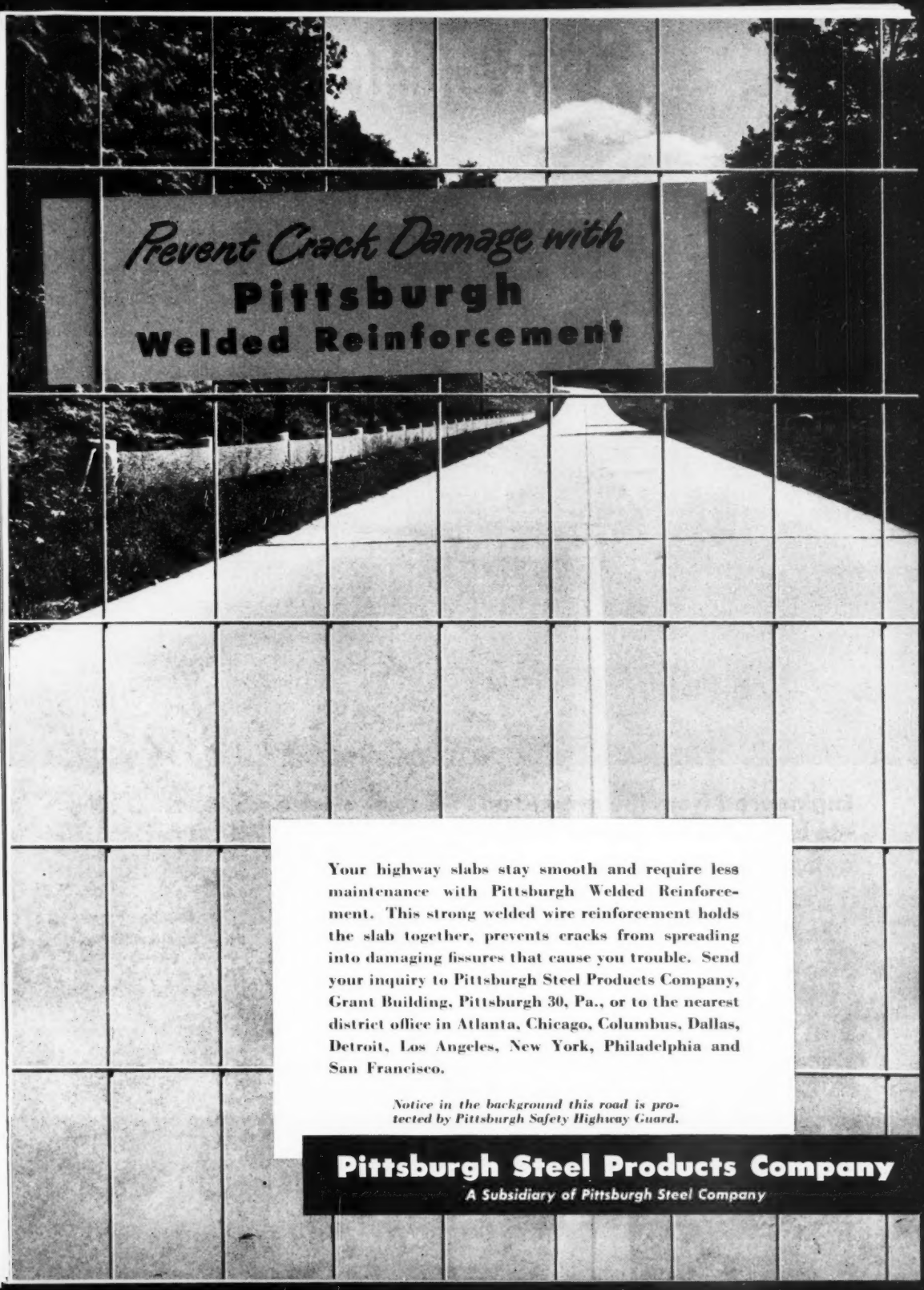
B. H. Prater has retired as Union Pacific R. R. engineering consultant, concluding 43 years in railroad work.

The Hinchman Corp., Francis Palms Building, Detroit, Mich., has been established by **W. H. D. Hinchman** and **James F. Hirshfeld** to take over and expand the underground electronics survey work, non-metallic minerals activities and some other functions of the W. H. D. Hinchman Co. Mr. Hinchman has operated the W. H. D. Hinchman Co. since 1924. Mr. Hirshfeld formerly was with the Great Lakes Steel Corp., Stran Steel Division, as chief engineer and assistant general manager.

(*Continued on page 70*)



At ceremonies in office of California's Gov. Earl Warren, Col. Ralph Tudor is formally notified of his command of Brigade of Engineers, U. S. Army Engineer Reserve. Tudor will organize brigade, headquarters and headquarters company as part of affiliation program of the Department of the Army. The brigade will be the fourth of twelve to be established. It is sponsored by the California Department of Public Works and will be the largest headquarters unit in the engineer reserve program. Seen here are, left to right, Director of Public Works C. H. Purcell, Gov. Warren, Gen. Frederick B. Butler, Commanding Officer, Central Military District, 6th Army, and Colonel Tudor. The latter is a West Point graduate, colonel in the Corps during the war and at present he heads the division of San Francisco Bay Toll Crossings in the Department of Public Works.



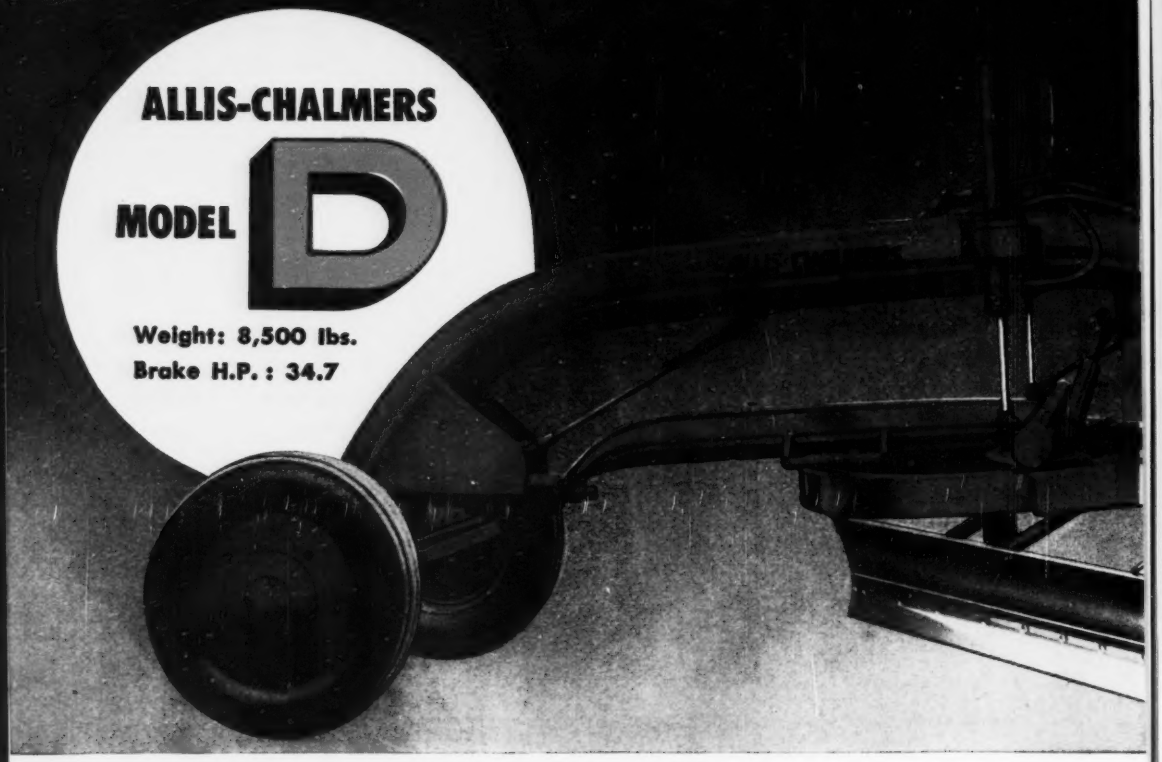
Your highway slabs stay smooth and require less maintenance with Pittsburgh Welded Reinforcement. This strong welded wire reinforcement holds the slab together, prevents cracks from spreading into damaging fissures that cause you trouble. Send your inquiry to Pittsburgh Steel Products Company, Grant Building, Pittsburgh 30, Pa., or to the nearest district office in Atlanta, Chicago, Columbus, Dallas, Detroit, Los Angeles, New York, Philadelphia and San Francisco.

Notice in the background this road is protected by Pittsburgh Safety Highway Guard.

Pittsburgh Steel Products Company

A Subsidiary of Pittsburgh Steel Company

Announcing · · A COMPLETELY NEW



Engineered from the ground up —to bring you BIG grader design and performance advantages

Big in Performance

● **TANDEM DRIVE** — maximum traction at all times, smoother riding.

● **PROPER WEIGHT DISTRIBUTION** — handles bigger loads . . . front-end stability.

● **"ROLL-AWAY" MOLDBOARD**—less power required to move more material at faster speeds.

● **HIGH THROAT CLEARANCE** — rolls larger loads without interference.

● **RIGHT WORKING SPEEDS** — four forward, 2.40 to 18.61 M.P.H.; reverse, 2.37 M.P.H.

● **TUBULAR FRAME AND DRAWBAR** — strong, shock absorbing, better visibility, more working clearance.

Big in Economy

● **RUGGED POWER** — famous Allis-Chalmers gasoline tractor engine; easy to service, economical to operate — fuel tank holds day's supply.

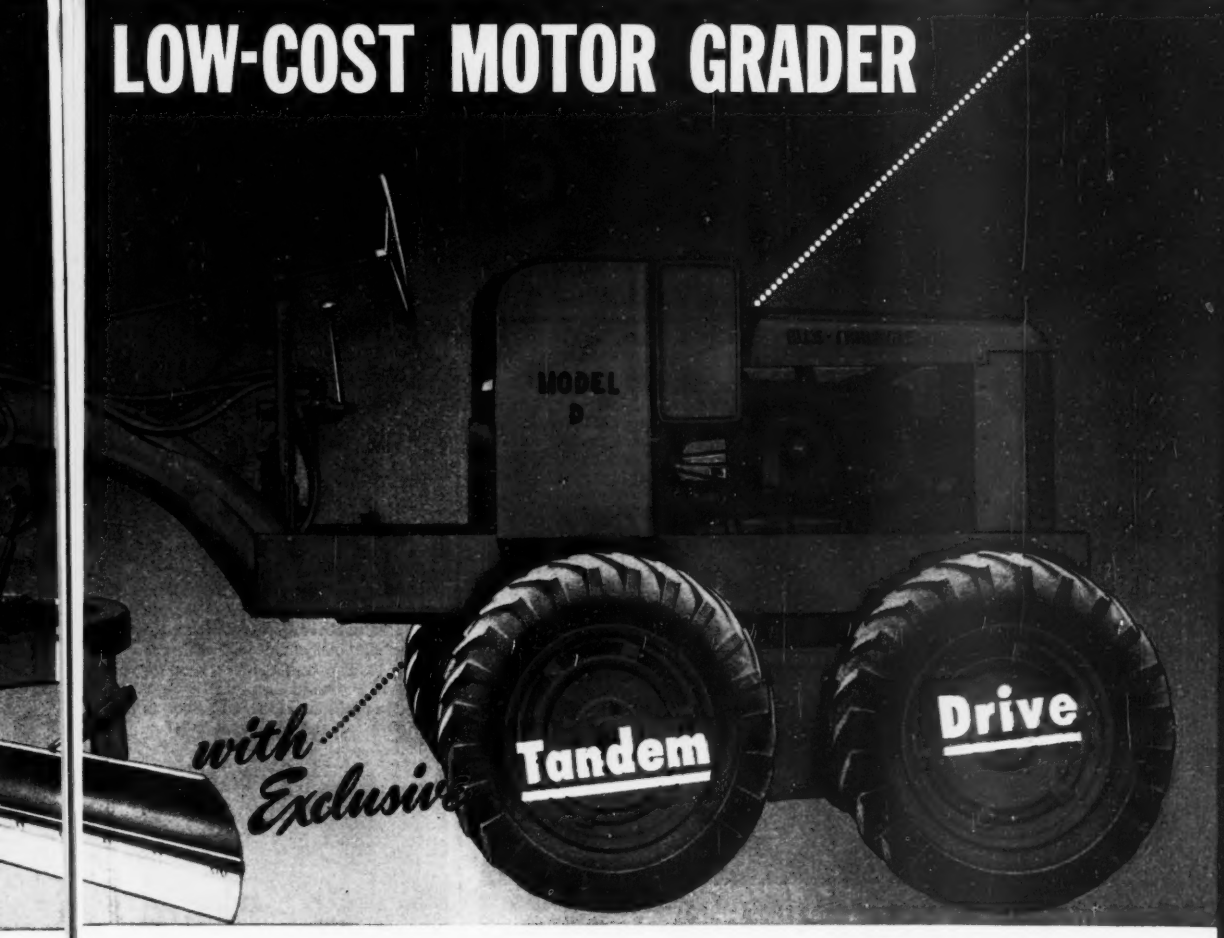
● **SIMPLIFIED SERVICING** — operating adjustments easily reached, quickly made.

● **ALL-WELD CONSTRUCTION** — strong, long life, stands up under tough service.

ALLIS-CHALMERS

TRACTOR DIVISION · MILWAUKEE 1, U. S. A.

LOW-COST MOTOR GRADER



Big in Operating Ease

- **FULL VISIBILITY** — no obstructions, operator can see full blade while sitting or standing.
- **GREATER OPERATOR COMFORT**—roomy platform, comfortable seat, easy to handle.
- **HYDRAULIC BLADE LIFT** — fast, positive, trouble-free; only two control levers.
- **HANDY CONTROLS** — blade angle set from platform; throttle, shift lever, starter, conveniently located next to seat.

Upper half of cab quickly lifted off or replaced.

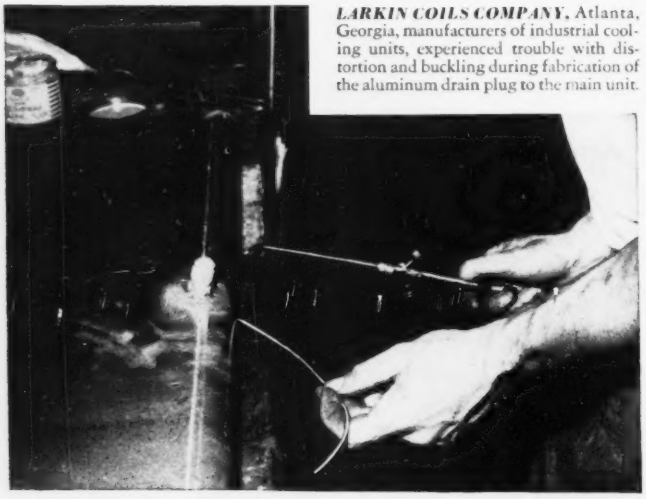
Scarifier location provides extra down pressure and allows controlled steering.

Watch for D-DAY At Your Allis-Chalmers Dealer

SPECIAL ATTACHMENTS

- Hydraulically Controlled Scarifier
- Hydraulic Loader
- All-View Cab
- Snowplow
- Various Other Accessories

Aluminum Brazing "ups" production 50%...buckling and distortion eliminated



LARKIN COILS COMPANY, Atlanta, Georgia, manufacturers of industrial cooling units, experienced trouble with distortion and buckling during fabrication of the aluminum drain plug to the main unit.

J. P. Flood and R. P. McCleskey, Airco Technical Sales Representatives, recommended aluminum brazing the drain plug to the unit, using Airco No. 716 Aluminum Brazing Wire and Elite Brazing Flux.

The company followed this suggestion, and found that the speed of the brazing technique increased production over 50%. More important, distortion and buckling was completely overcome — finished welds were excellent, rejects virtually eliminated, and savings were effected in gas and filler wire consumption. The company was extremely pleased with these results.

. . . .

TECHNICAL SALES SERVICE — ANOTHER AIRCO PLUS-VALUE FOR CUSTOMERS

To assure its customers of high efficiency in all applications of the oxyacetylene flame or electric arc, Air Reduction has available the broad, practical experience of its nationwide Technical Sales Division personnel. The collective experience and knowledge of these specialists has helped thousands to a more effective use of Airco processes and products. Ask about this Airco "Plus-Value" service today. Write your nearest Airco office. In Texas: Magnolia Airco Gas Products Company . . . On West Coast: Air Reduction Pacific Company.

AIRCO **AIR REDUCTION**

Offices in Principal Cities

Headquarters for Oxygen, Acetylene and Other Gases . . . Carbide . . . Gas Cutting Machines . . . Gas Welding Apparatus and Supplies . . . Arc Welders, Electrodes and Accessories

D. J. Belcher, professor in Cornell University's department of civil engineering, announces the formation of a new firm, D. J. Belcher and Associates, Ithaca, N. Y. The organization will specialize in aerial photography analysis, utilizing specialists in engineering, agronomy and geology.

W. L. Saunders, for the last 14 years highways engineer for the Ottawa division of the Ontario department of highways, has been transferred to the Owen Sound Division.

John Thomas Gould of Raleigh, N. C., has been added to the staff of the Carolinas Branch, Associated General Contractors of America, with headquarters at Charlotte, N. C., as an assistant executive secretary specializing in highway and public utilities construction. A former captain in the Army Corps of Engineers, he received a degree in construction engineering from North Carolina State College.

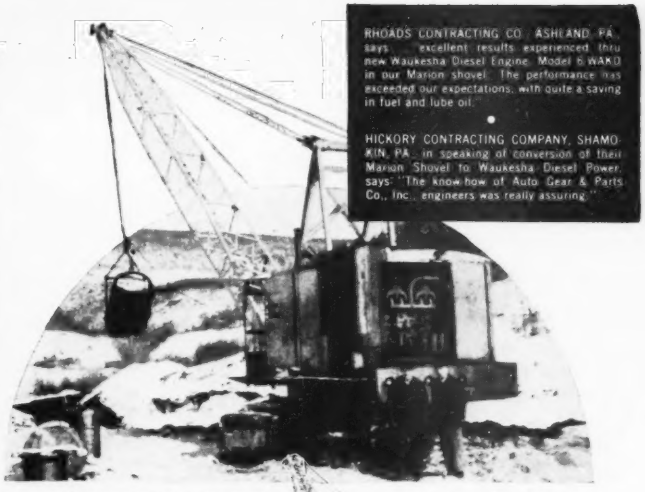
Donald S. Walter, now construction engineer on the Anderson Ranch Dam in the Boise River Basin of Idaho, has become regional engineer for the Bureau of Reclamation at Boise, succeeding **Grant P. Gordon, resigned.** Walter held key positions in the construction of Hoover, Grand Coulee and Friant dams.

John R. Peyton was honored upon his completion of 40 years of continuous public service in Jacksonville, Fla., with the Army Corps of Engineers. He started on May 13, 1909, and since that date has acquired a background of engineering and construction experience and knowledge invaluable to the public, to the federal government, and to the Corps of Engineers. He is chief technical consultant and principal assistant to the district engineer on all matters, and exercises control over planning and execution of river and harbor and flood control work within the district.

B. E. Crumpler (right), accompanied by R. E. Parker, inspect drilling operations on the New Elkhorn Tunnel, 7,110-ft. double-track bore now under construction by the Norfolk & Western Railway Co., near Bluefield, W. Va. Mr. Crumpler is assistant engineer in field charge of construction for the N & W and Mr. Parker is in charge for Haley, Chisholm and Morris of Charlottesville, Va.

Col. Lyle R. Seeman, newly appointed Alaska district engineer, Corps of Engineers, who succeeds Col. William E. Potter, assigned to office of Chief of Engineers, Washington, D. C. Colonel Seeman's work will include a survey for development of power resources, flood control and navigation. Seeman was a classmate of Potter at West Point, in 1928. During the war he was Air Forces Engineer in the India-Burma theater. Later he was assigned to Manhattan District, Corps of Engineers, principally concerned with the Los Alamos project.

(Continued on page 74)

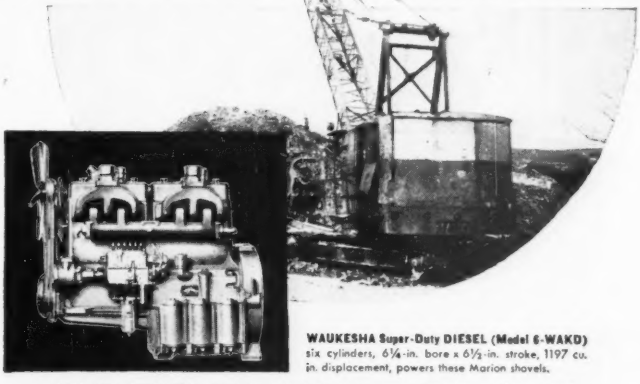


RHOADS CONTRACTING CO., ASHLAND, PA., says: "... excellent results experienced thru new Waukesha Diesel Engine, Model 6-WAKD in our Marion shovel. The performance has exceeded our expectations, with quite a saving in fuel and lube oil."

•

HICKORY CONTRACTING COMPANY, SHAMOKIN, PA., in speaking of conversion of their Marion Shovel to Waukesha Diesel Power, says: "The know-how of Auto Gear & Parts Co., Inc., engineers was really assuring."

2 CONTRACTORS . . . . 2 SHOVELS . . .



WAUKESHA Super-Duty DIESEL (Model 6-WAKD) six cylinders, 6¼-in. bore x 6½-in. stroke, 1197 cu. in. displacement, powers these Marion shovels.

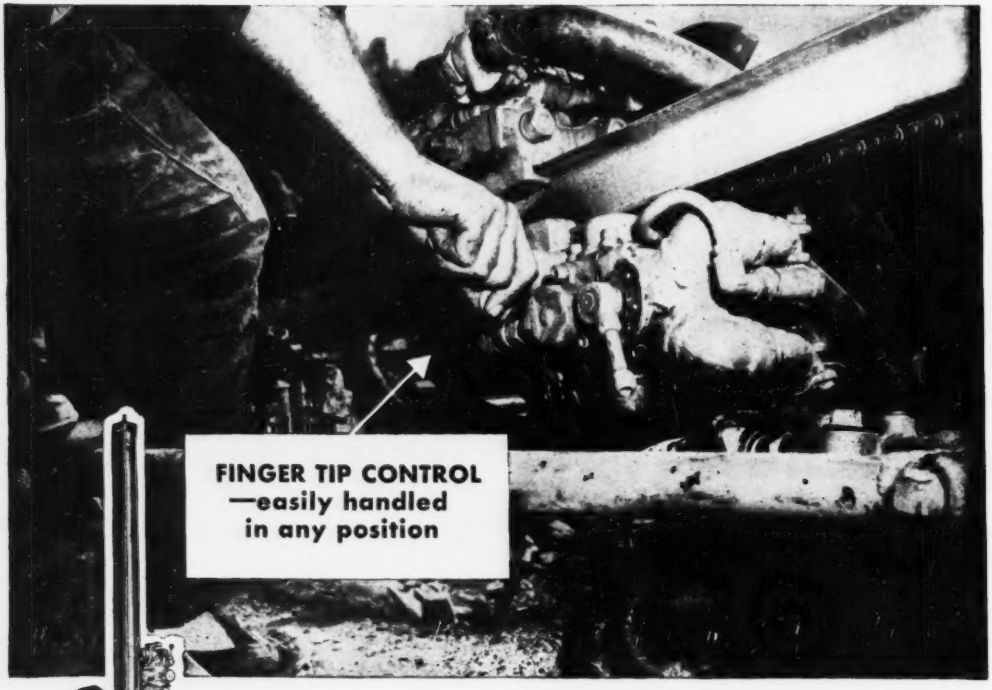
WAUKESHA *Diesel* POWER

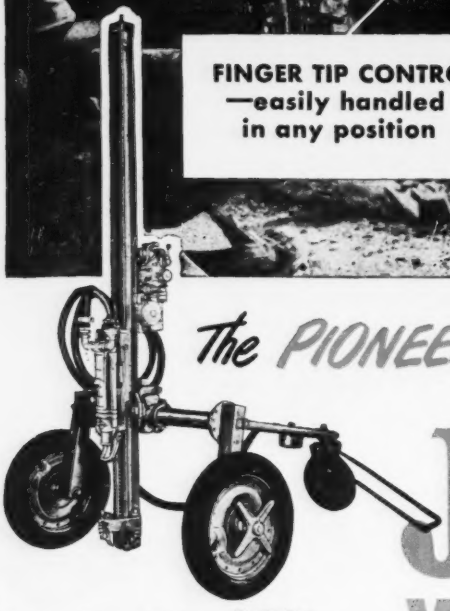
does a better job for BOTH!

For shovel work particularly, the most outstanding of all Waukesha Diesel characteristics is smoothness and trigger-quick response to the operator's every command. Lively, yet shudder-free, it meets every power and load demand with all the smoothness of steam. And that's a new experience, even to an old Diesel hand. Clean burning, its fuel economy is excellent. Built with rugged simplicity. Such features as hard, wet cylinder sleeves, simple overhead valve mechanism, gear-driven water pump cooling, and pressure oiling—all make the Waukesha Diesel easy to understand and simple to service. For all the details, send for Bulletin 1415.

WAUKESHA MOTOR COMPANY, WAUKESHA, WISCONSIN

NEW YORK TULSA LOS ANGELES





The PIONEER and still the LEADER!

JOY LIGHTWEIGHT WAGON DRILL

Introduced by JOY 8 years ago—hundreds in use, nation-wide . . .

HERE'S WHY:

- MORE HOLE PER SHIFT with the *exclusive* "drill and blow" feature.
- REALLY LIGHTWEIGHT—only 750 lbs.—less than half the weight of conventional wagon drills.
- Easily operated by ONE MAN; mounts JOY 3" or 3½" drifters, or 55 or 65 lb. sinkers.
- POSITIVE LOCKING BRAKES—requires no spikes.

WRITE FOR BULLETIN

WBD C2073

Consult a Joy Engineer

JOY MANUFACTURING COMPANY

GENERAL OFFICES: HENRY W. OLIVER BUILDING • PITTSBURGH 22, PA.

IN CANADA: JOY MANUFACTURING COMPANY (CANADA) LIMITED, GALT, ONTARIO

FOR SPEEDY · ECONOMICAL INSTALLATION . . .

Specify LOCK JOINT

One pull-shovel does excavating and installs 48" Lock Joint Pressure Pipe.

With its exclusive Rubber and Steel Joint, Lock Joint Reinforced Concrete Pressure Pipe is installed rapidly and efficiently in extremes of heat or cold—in wet ditch or dry.

Only one machine is required to make the excavation and install the pipe. No caulking or bolting of the joint is necessary, and the pipe may be back-filled immediately. The Rubber and Steel self-centering expansion joint is flexible to accommodate ground settlement, and is watertight at any internal pressures common to American Water Works practice.

Today, millions of feet of Lock Joint Reinforced Concrete Pressure Pipe, equipped with the Rubber and Steel Joint, installed at low cost and needing little or no maintenance, are giving unfailing service throughout the Western hemisphere.

Rubber and Steel Joint ready to be pushed home.

LOCK JOINT PIPE COMPANY

Est. 1905

P.O. Box 269, East Orange, N. J.

PRESSURE PIPE PLANTS: Wharton, N. J. • Turner, Kan.

BRANCH OFFICES: Cheyenne, Wyo. • Denver, Colo. • Kansas City, Mo. • Valley Park, Mo. • Chicago, Ill. • Rock Island, Ill. Wichita, Kan. • Kenilworth, N. J. • Hartford, Conn.

SCOPE OF SERVICES: Lock Joint Pipe Company specializes in the manufacture and installation of Reinforced Concrete Pressure Pipe for Water Supply and Distribution Mains in a wide range of diameters as well as Concrete Pipe of all types for Sanitary Sewers, Storm Drains, Culverts and Subaqueous Lines.

LOCK JOINT
Reinforced Concrete
PRESSURE PIPE

Steeline

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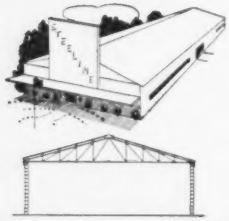
FOR MASONRY WALL CONSTRUCTION



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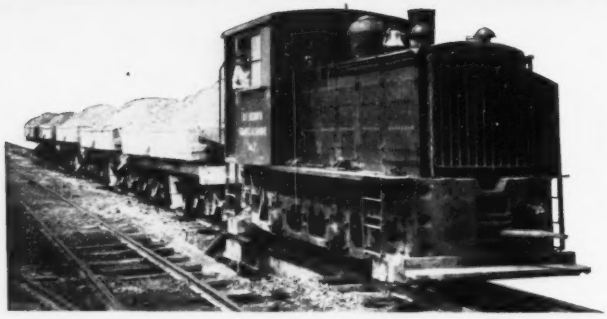

Over a period of many years, under all kinds of operating conditions, PLYMOUTH Locomotives have established proved records of dependable performance. Economical to use and economical to maintain, PLYMOUTH Locomotives are built well—and built right—by careful engineering planned to meet exacting requirements in the construction field. We feel sure there's a PLYMOUTH Locomotive to meet your particular needs. Write for complete details today.

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PLYMOUTH LOCOMOTIVE WORKS
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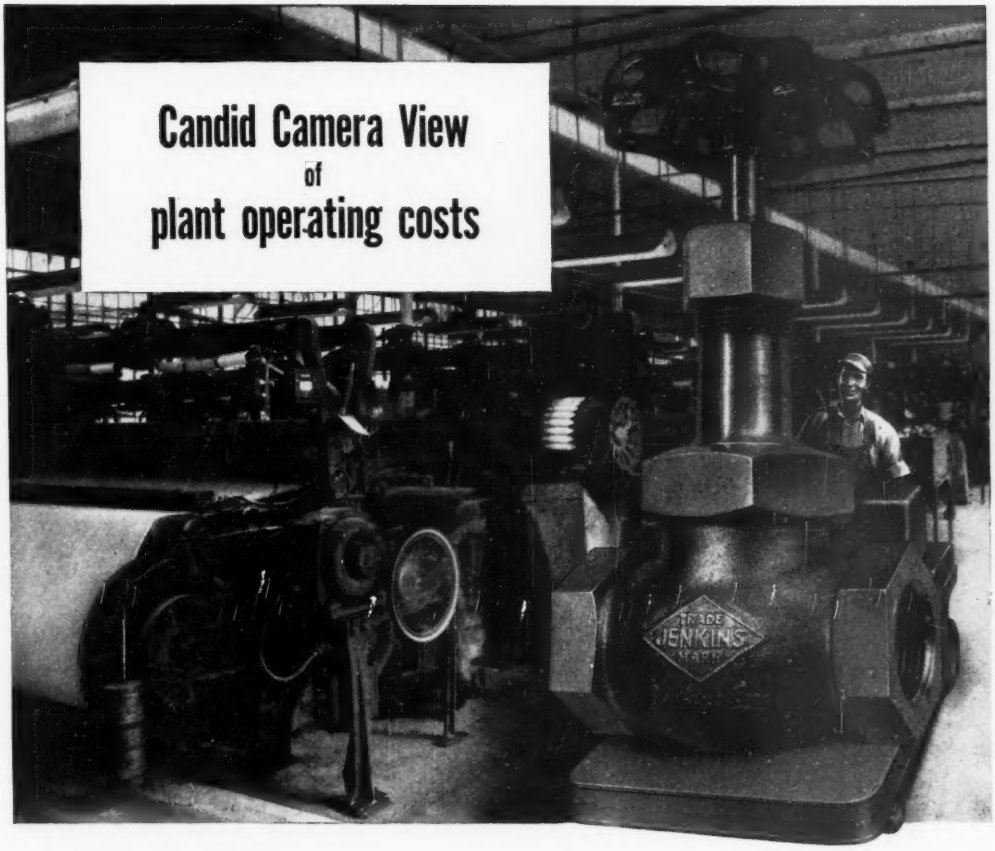
The $6,000,000 Rickenbacker Causeway connecting Miami and Biscayne Key, Fla., was completed recently. Pictured are E. A. Anderson, right, Dade County Engineer, and Herbert Soffir, assistant county engineer.

Discussing the merits of double glazing for offices of the new, air-conditioned Textron Southern Co. mill at Hartwell, Ga., are, left to right, E. R. Davis, construction superintendent for Daniel Construction Co., H. M. Scherr of Textron Southern, and J. G. Ellison, cost accountant and time keeper for Daniel. The Textron engineering department designed the one-story, 284 x 400-ft. rayon-crepe manufacturing plant.

Helping to push the construction of Willow Freeway, in Cleveland, Ohio, toward completion this year are, left to right: F. J. Patton, assistant project engineer and C. E. Ross, project engineer for the Ohio Department of Highways; and Ferral Shons, bridge superintendent for the Horvitz Co., contractors on one section of the project.



FOCUSED on operating costs of a textile plant, a truly candid camera would record this view of valves in proper relation, cost-wise, to other equipment. By the simple photo-magic of showing *all* valves in the plant as *one* valve, the picture points up an important fact — that valves, collectively, are a major investment in *any* plant, *any* large building where operation involves fluid control.

IT PAYS MANAGEMENT to keep this fact in mind. With wages and material costs the highest ever, valve maintenance costs must be watched as carefully as operating expense of larger plant units.

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JENKINS BROS. helps you meet this problem two ways. First, by building extra endurance into Jenkins Valves, making them the longest-lasting, lowest-upkeep valves that money can buy. Second, with advice from Jenkins Engineers on any question of proper selection, installation, or maintenance.

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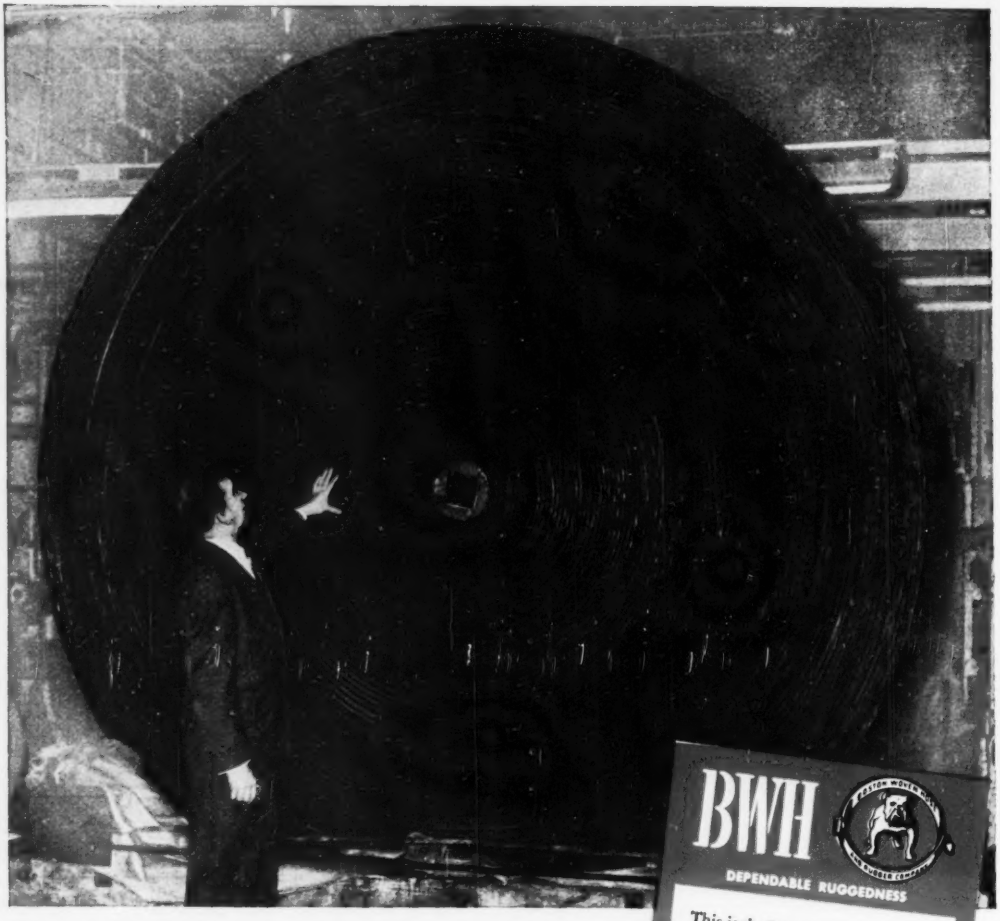

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Continuous Uniform Stretch

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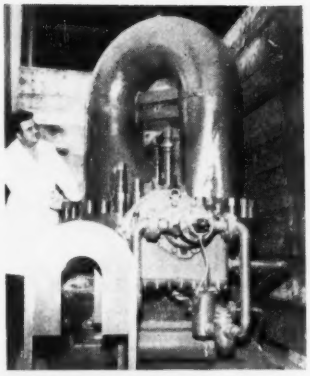

STEAM TURBINE-DRIVEN, this giant will pump 400,000 bbl. of oil per day. (Wide World Photo)

Giant oil line pumps are tested in new $500,000 lab

Giant oil line pumps headed for use in the Trans-Arabian pipe line are put to test before shipment in a new $500,000 hydraulic laboratory installed by Byron Jackson Co. in its Vernon, Calif., plant.

Power and venturi capacity of the new laboratory permits the pumps—largest oil line pumps ever built—to be put under slow-speed working conditions in the laboratory, with a 500-hp., 1,460-rpm. motor.

"Previously," explained William N. Beadle, vice-president of the firm, "it has not been possible to test full size production models. Models of much smaller size had to be relied upon."

In the field, the BJ oil line pumps will require 6,000 hp. at 3,600 rpm. and will pump 400,000 bbl. of oil per day.

The new 153 x 60-ft. laboratory, equipped with a 400,000-gal. tank, was set up primarily to certify the company's pumps prior to delivery. However, the facilities are available for use by other firms and agencies for all types of centrifugal, propeller, turbine and submersible pumps as well as motors. Engineering classes in the field also may use the testing equipment and statistical data compiled in the tests.

Overhead cranes and well-derricks in the laboratory are arranged in a production bay fashion so that testing motors, venturis and dynamometers are quickly swung into place along with the pumps to be tested. The lab has a venturi capacity up to 70,000 gpm. and 3,000 testing horsepower. Equipment includes three horizontal dynamometers and two vertical induction dynamometers and a dynamometer speed regulating system that holds the testing speed constant to plus or minus 0.015%, and a 600 hp., 50 cycle synchronous motor-generator.

Surveying and mapping

The seventh annual Illinois conference on surveying and mapping was held recently at the University of Illinois under the joint sponsorship of that institution and the Illinois Institute of Technology. Highlighting the conference, attended by 80 surveyors, engineers and educators, were these two features: A series of charts and tables showing the relationship of the various datum planes used in Illinois to mean sea level (1929-5th General Adjustment); and a paper describing the Illinois statewide coordinate system.

The North Carolina State College Extension Division has plans for a five-day short course for surveyors at State College, beginning Sept. 12, in cooperation with the North Carolina Society of Surveyors and the department of civil engineering at the college. The course is "designed for the man who has practical experience in land surveying, but has been handicapped by lack of training in the principles of calculating surveying problems."

Subjects such as magnetic declination, use of the planimeter, calculations of latitudes and departures, calculation of areas by D.M.D. method, calculation of length and direction of missing sides by use of latitudes and departures, etc., will be included in the course. Instruction and equipment will be furnished by the department of civil engineering.

A familiar campus figure will be missing next fall when civil engineering classes set up their transits and levels and proceed to the task of surveying the Cornell University quadrangle at Ithaca, N. Y. Prof. Paul H. Underwood, who estimates he has supervised more than 6,000 student surveyors in field practice on the ten-acre quadrangle, will retire this summer after 29 years as head of surveying instruction in the school of civil engineering.

Surveying is a required course for civil engineers and the slopes and gorges of the Cornell campus have provided a natural laboratory for instruction in the art. The quadrangle, right at the front door of the civil engineering headquarters in Lincoln Hall, has become one of the most thoroughly surveyed spots on earth.

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- *Helps you solve everyday problems*
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Editor-in-chief LEONARD C. URQUHART

Professor of Structural Engineering, Cornell University. Second Edition, 870 pages, 6 x 9, over 900 illustrations, tables and diagrams, semi-flexible cover, $6.00

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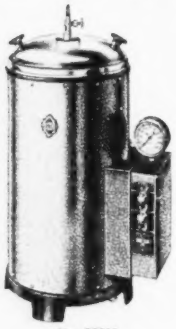

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OBITUARY

Claude E. Puckett, 57, Council Bluffs, Ia., construction engineer of the Monta Vista, Colo., Bureau of Reclamation office, died at Amarillo, Tex., recently.

Beaudric L. Howell, 62, civil engineer and vice-president and a director of the Chevy Chase Land Co., died in Washington, D. C., June 24. He received his engineering degree from the University of Virginia and became a partner in his father's firm, David J. Howell and Sons, until the death of his father in 1927. He then took over the civil engineering concern. He was particularly active in Chevy Chase, Md., area real estate development.

Luke Arnold Salsbury, 60, civil engineer for the New York State Highway Department, died June 25 at Watertown, N. Y. He was graduated from the University of Michigan in 1912 and for the last 28 years has been employed by the department in Watertown as a civil engineer.

Samuel A. Berkebile, 86, Delta, Ohio, contractor on numerous public buildings in northwestern Ohio and southern Michigan for 57 years, died June 24.

Carl G. Ohlson, 69, vice-president of Aetna Standard Engineering Co., Youngstown, Ohio, died June 16. A graduate of the Polytechnic Institute of Stockholm, he had been consulting engineer for the Youngstown Sheet and Tube Co. In 1930 he joined the Morgan Construction Co., Worcester, Mass., and shortly after was sent to New South Wales, Australia, as consultant on an engineering contract. He returned to Youngstown in 1933 as vice-president of Aetna, which post he held until his death.

Rux Dodson Currin, 43, superintendent of the municipal water works at Oxford, N. C., died June 26.

George A. Caldwell, 85, one of the founders of the Mississippi Valley Structural Steel Co., of Chicago, died at Decatur, Ill., June 9. He had been vice-president and general superintendent of the Decatur Bridge Co., from 1902 until 1922 when the name of the company was changed to the Mississippi Valley Structural Steel Co. He retired in 1935. He devised the original automatic welding machine used in the fabrication of structural steel.

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Elections and Activities

The Fairfield County Chapter of the Connecticut Society of Professional Engineers has elected these officers: President, Edward S. Ruth, Norwalk; vice-president, Max W. Davis, Bridgeport; Treasurer, George M. Dmitroff, Stratford; secretary, George N. Brown, Bridgeport. Edward W. Borggrafe, Stamford, was elected a director and Edward J. Nesbitt chapter representative to the state board of the society. William E. Armstrong, Bridgeport, and Edwin S. Osteyee, Stratford, were elected to the auditing committee.

Lawrence E. Dickson, president of the Standard Safety Equipment Co. of Chicago, has been re-elected president of the Industrial Safety Equipment Association. Charles H. Gallaway, sales manager of American Optical Co's Safety Products Division, was elected vice-president succeeding Walter G. Legge. William J. Parker of William J. Parker, Inc., New York City, was elected secretary-treasurer.

New York State officials joined engineers and contractors at Mt. Morris, N. Y., for a recent field inspection trip of Mt. Morris Dam on the Genesee River. The tour was sponsored by the New York State Crushed Stone Association, of which Harry E. Battin Jr. of Binghamton is president. Other officers include H. W. Barnes, Rochester, vice-president; H. E. Rainer, Buffalo, treasurer; Harry R. Hayes, Albany, director. The group assembled at the plant of the General Crushed Stone Company to see the first stage of the aggregate processing for the dam.

Then visitors proceeded to Mt. Morris where a general inspection of the work was made. W. V. Greeley, project manager at the dam, and Col. Herbert D. Vogel, district engineer, described the work.

MAJOR MEETINGS

Pan-American Engineering Congress, Rio de Janeiro, Brazil, July 15-24.

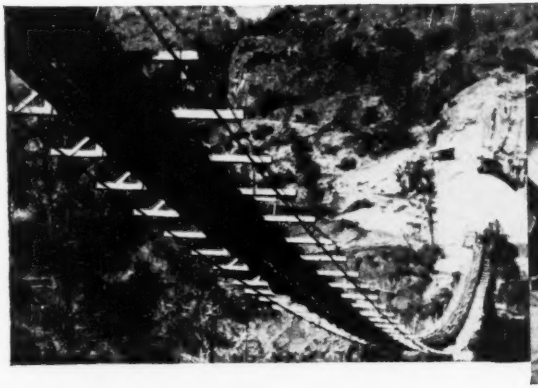
New England Water Works Association, The Balsams, Dixville Notch, N. H., Sept. 13-16.

Public Works Congress and Equipment Show, Municipal Auditorium, Kansas City, Kan., Sept. 18-21.

Institute of Traffic Engineers, Wardman Park Hotel, Washington, D. C., Sept. 25-28.

Association of Western Engineers, Patterson Hotel, Bismarck, N. D., Aug. 22-25.

"TAIN'T SO, MISTER!"



STRANGE! Construction men have their likes and dislikes about equipment for certain jobs and back their ideas with arguments, orders, and specifications. But when buying hose or belt, they will accept whatever is available.

Do they think that "All Rubber Goods Are Alike?" "TAIN'T SO, MISTER." Constructions and Compounds in Rubber Products can vary just as much as design in machinery; *however, the difference is not visible.*

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U. S. Rubber's experience in building conveyor belts for carrying materials on construction jobs extends from the smallest roadside portable crushers to the largest dirt and rock moving projects.

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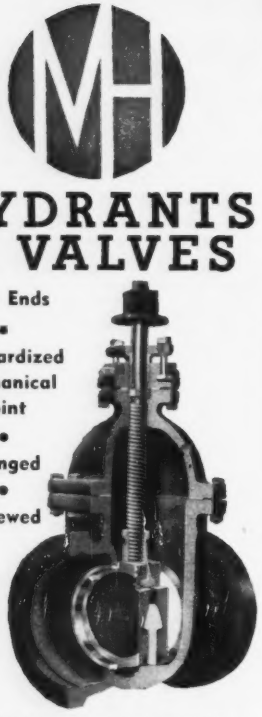

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UNIT PRICES BID BY CONTRACTORS

California street paving unit prices available

Upon request, ENGINEERING NEWS-RECORD will mail the schedule of bids received June 22 on the U. S. Engineers' Tujunga, Wash., improvement contract for street paving and bridges over the improvement channel between Los Angeles river and Magnolia Boulevard, in San Fernando valley, Los Angeles County, California.

Peter J. Akmadzich, Sunland, was low, at $84,241, the third and high bidder estimating $106,635. Engineers' estimate was $77,643. Funds have been contributed by local interests. Work to be performed includes grading, rock and oil surfacing, asphalt concrete surfacing, concrete paving and some reinforced concrete work.

Akmadzich bid 92,000 sq.ft. of 10-8-10-in. concrete paving at $0.38, compared with the estimate of $0.40. His 8-in. asphalt pavement bid was $5.85 on 1,900 tons, and his cement bid was $3.50 on 3,500 barrels.

Trolley Track Renewal

New York City's Board of Transportation took bids on 13,850 ft. of single-track renewal for surface railroad lines in Brooklyn, June 24. The work is in Flatbush Ave. from Eastern Parkway to Empire Blvd., and in Nostrand Ave. from Avenue D to Flatbush Ave. The low bidder of two was Thos. H. Reynolds Corp., 98 Park Place, New York 7. His price was $96,992.

The other bid was $99,496. Items include: Installation of tracks (standard wood ties embedded in concrete), exclusive of sheet asphalt pavement; a right-hand crossover; placing 3,500 cu. yd. of ready mixed concrete.

Horsetooth supply conduit Big Thompson project

Two bids were received by the Bureau of Reclamation June 24 on the mile-long Horsetooth supply conduit, which with its diversion works and a short section of canal, will link the Colorado-Big Thompson project's mountain works with the project's lowland works (lowland works include foothill canals and conduits, northward to Horsetooth reservoir and southward to Flatiron reservoir).

The diversion structure covered by this bidding is in Big Thompson canyon, about a mile above its mouth. The conduit cuts through canyon rock, emerging about a quarter-mile south of the canyon's mouth. Its section is a modified horse-shoe about 8-ft. diameter inside concrete lining. The contract's canal section runs from the downstream tunnel portal northward to the canyon mouth.

Bidders were Western Paving Construction Co., Denver, who bid $1,383,440, and Grafe-Callahan Co., Los Angeles. The former bid $34.25 per cu. yd. and the latter bid $36.65 on 16,500 cu. yd. of tunnel excavation.

Ten bids received on Texas relief bridge

John F. Buckner & Sons, Cleburne, Tex., was a low at $95,377, in bidding on a 950-ft. relief bridge across the west fork of Trinity river, near Decatur, in Wise county, Texas. Nine others sought the work, the high bid being $114,292. Contract time is 250 working days.

Buckner's prices included: reinforcing steel, 195,177 lb. at $0.083; structural steel, 158,500 lb. at $0.09; 15-in. square precast concrete piling, 3,060 ft., at $5.35. The Texas highway department is owner.

William H. Greene low on L. I. resurfacing job

Long Island's old Sunrise Highway, which runs from New York to Montauk Point, will have its face lifted (literally) in two stretches, totalling 3.70 miles, between Quogue and South Hampton. The project includes widening the present concrete surface which varies from 24-42-ft. width, to 36-45-ft. width, with bituminous macadam, and placing a new asphaltic concrete surface mat 2½ in. thick.

On June 22, William H. Greene of Westbury, N. Y., was low of four at $146,325. High was $168,946 and the engineer's estimate was $180,000. Greene bid $7.00 per cu.yd. on 1600 yd. of bottom-course bituminous macadam, $1.00 per cu. yd. on 1,600 cu yd. of unclassified excavation and $0.10 per sq. yd. on 51,900 sq. yd. cleaning existing pavement. There are 27 items in the schedule. Owner is New York Department of Public Works.

Unit price reports on jobs cited in these columns will be mailed to readers of Engineering News-Record on request at no charge. Address: Manager, Business News Dept., Engineering News-Record, 330 W. 42nd St., New York 18, N. Y. Identify by quoting headline as used herewith, and be sure to give full mailing address.

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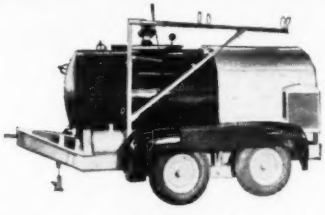
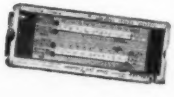
WITH LESS FUEL, WATER AND WORK—USE A CLEAVER-BROOKS

PUMPING BOOSTER

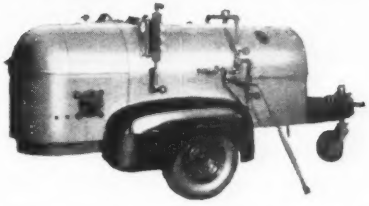


The Cleaver-Brooks Pumping Booster heats only the amount of material required — not necessary to heat entire car. No steam or water required for operation with this oil fired, high efficiency unit. Cleaver-Brooks pumping boosters heat to high temperatures faster through the exclusive flow-equalizer feature. Available in two sizes, skid or trailer mounted — No. 1 Booster, capacity approx. 300 gph, temperature raise 25 to 35°F., No. 2 Booster, capacity approx. 35° gph, temperature raise 45 to 55°F.



Write on Your Business Letterhead . . . For the Bituminous-Mix Calculator — a ready reference slide rule showing weight of mix needed in lbs. and tons based on area and depth of area to be covered.

TANK CAR HEATER



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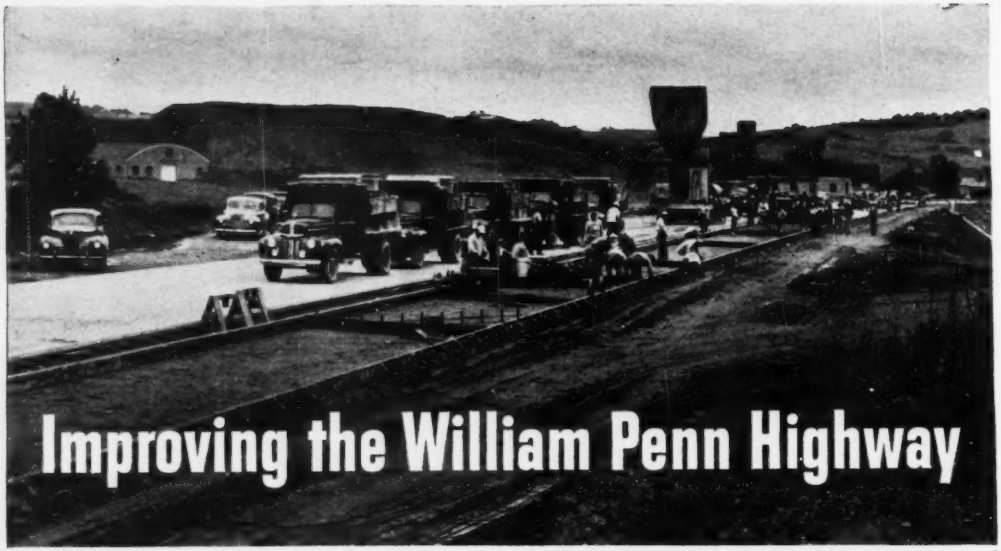

Installing tie-bars and keyway as trucks wait turn to dump batch into skip.

Left to right: Bruno Ferrari and John C. Slate, both of Latrobe Road Construction Co., with T. J. McKay, senior construction engineer, Pennsylvania Department of Highways.

As part of its far-reaching road-modernization program, the Pennsylvania Department of Highways recently authorized five miles of relocation on the William Penn Highway, at New Alexandria, Pa. The new road varies in width from two to four lanes. Included in its construction were two bridges and seven culverts. Contractor: Latrobe Road Construction Co., Latrobe, Pa. Steel piling, bar mats, dowel units, and cable guard rail were supplied by Bethlehem.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by
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BETHLEHEM STEEL

—And a big smile for the photographer! Willing hands lift Bethlehem Hinged Bar Mat at batching plant stockpile.

With Bethlehem Hinged Bar Mat in place, screw spreader goes to work on top course. Job used 300 tons of mats.

This reinforced concrete bridge has span of more than 53 ft, and will carry new highway over secondary road.

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

ELSIE EAVES, Manager — *J. A. MAHONEY, Reports* — *M. R. ROESSLER, Statistics*

WATER SUPPLY

BIDS ASKED

July 28

Conn., Willimantic — Roger F. Paulhus, city clk., City Hall, addnl. facilities to waterworks comprising water distr. mains. Contr. 2. Plans deposit $20. Gibbs & Hill, Inc., Pennsylvania Station, New York 1, N. Y., consult. engr.; adv. ENR 7/21. CD 1/22/47.

Wis., Elva—Village, WW sys. $65,000. Davy Eng. Co., 502 Main St., LaCrosse, engr.

July 30

Que., Montreal—Executive Com., City Hall, enlargement McTavish Pumping Station and Works, Contr. 2, for Municipality. Extended date. H. A. Gibeau, city engr. CD 5/25.

Que., Montreal—Executive Com., City Hall, reconditioning trunkmains, along Atwater Ave., near low level pumping station, for municipality. Plans deposit $25. H. A. Gibeau, city engr.

Que., Montreal—Executive Com., City Hall, supply and installation electrical equip. etc., McTavish Pumping Station for Municipality. Extended date. H. A. Gibeau, city engr. CD 6/15.

About August 10

Tenn., Rogersville—City, Lon Bible, mayor, WW imprvs. $250,000. CD 2/15.

LOW BIDDERS

Ala., Hokes Bluff (mail Gadsden)—Town, c/o Wm. B. Ford, mayor, Route 2, Gadsden, WW distr. sys., from Buchanan Contg. Co., 3 St., Birmingham. **$95,642.**

Miss., Eupora — Town, Town Hall, WW imprvs., from W. W. Dunn & Co., First Federal Savings & Loan Bldg., Jackson. **$33,615.**

†N. M., Camp Oro Grande—U. S. Govt., Post Quartermaster Contg. & Purch. Div., Fort Bliss, Tex., June 22, drilling, casing, developing water supply well, Serial No. E 41-014-49-95, from Payne & Ballard Drilling Co., 1701 Myrtle Ave., El Paso, Tex. **$41,964.**

N. C., Mooresville — Town, J. R. Holshouser, mayor, June 30, WW imprvs., furnishing pipe, from Glamorgan Pipe & Fdry. Co., 1930 Capron St., Lynchburg, Va., **$58,528.** CD 6/22.

Tex., Brenham—City, cancelled bids to have been opened June 25, water treatment plant. **$120,000.** CD 5/27.

Tex., Pasadena—City, June 29, WW incl. 500,000 gal. steel ground storage tank, pumping unit, c.i. mains from Holland Page, Baytown, Sect. 1. **$35,559.** George A. Smith, city engr.

CONTRACTS AWARDED

Ky., Whitesburg—City, City Hall, WW imprvs., to W. K. Bodell, Jenkins, **$36,326.** Bids 6/27.

Mo., Unionville — City, City Hall, water treatment plant, own forces. Approx. **$30,000.** Bids 5/20. CD 4/29.

Tex., Freeport—City, water supply well to West Constr. Co., Freeport, **$29,000.**

Wash., Seattle—City, County-City Bldg., watermains in Roosevelt Way, to A. Jakobini, 5232 49 Ave. S. W., Seattle, **$28,203.** Bids 6/29, awarded 7/6.

SEWERS, WASTE DISPOSAL

BIDS ASKED

July 28

Ala., Tuscaloosa—Ala. State Hospitals, c/o Luquire Eng. Co., engr., 255 St. Francis St., Mobile, sanitary sewer lines and treatment plant at State Hospital. Plans deposit $50.

July 29

Pa., Phila.—Dpt. of Pub. Wks., City Hall Annex, Schedule A, sewage disposal proj., Lower Delaware Low Level Intercepting Sewer, in Swanson St. from Moore to Morris Sts. and in Delaware Ave. from Morris to Swanson Sts. and Swanson St. from Delaware Ave. to Kenilworth St., Contr. No. SD 1058E; adv. ENR 7/14. CD 3/1/46.

On or About August 1

Va., Roanoke—City, Municipal Bldg., sewerage collecting extens., 8 and 12 in. pipe, Contr. 3, Hollins Rd. area. $180,000. Mattern & Mattern, 118-A Campbell Ave., S. W., Roanoke, Va., and Alvord, Burdick & Howson, 20 N. Wacker St., Chicago, Ill., consult. engrs. CD 6/30/44—ENR 7/13/44.

August 1

Calif., Selma—City, City Hall, sanitary sewage disposal plant. Approx. $50,000. Plans deposit $1. J. A. Ross, 421 Rowell Blvd., Fresno, engr. CD 11/18/48.

August 8

Ont., Peterborough—Mayor M. J. Swanston, sewage plant for Municipality, $125,000. Plans deposit $50. A. E. Chalmers, city engr. CD 6/16/47.

August 16

La., Houma—Mayor, sewerage sys. extens., incl. approx. 10 mi. 8- to 24-in. pipe, 4 lift stations. Bids 6/23 rejected. De Fraties, Ricketts & Atteberg, 316 E. Main St., engrs. CD 5/24.

August 29

Mass., Lawrence—At office Gordon E. Gaffney, city clk., City Hall, Common St., refuse incinerator. Plans deposit $25. Ashton, Hantreas & Pratt, 477 Essex St., archts. Metcalf & Eddy, 1300 Statler Bldg., Boston, engrs. CD 4/2/46.

Bids Asked

Tex., Longview — City, outfall sewers at Grace's Creek. $75,000. Plans deposit $25. Julian Montgomery, 602 West Ave., Austin, engr. CD 6/9.

LOW BIDDERS

Ark., Arkadelphia — City, July 6, sewerage sys. imprvs., from E. W. Daniels Plumbing & Heating Co., 1418 W. 9 St., North Little Rock, **$165,131.** CD 6/28.

Ark., Nashville—City, July 6, sewerage sys. imprvs., from Arkansas Constr Co., Pyramid Bldg., Little Rock, **$72,094.** CD 6/21.

Conn., Newington—Metropolitan Dist. Bd. Contr. & Supply, 115 Broad St., Hartford, June 23, 3,554 ft. 42 in. rein.-con. pipeline, from Town line to point near Hartford Ave., along Piper Brook, from Martin & Zanke Co., Inc., 215 Main St., Rocky Hill, **$121,054.**

Fla., Pensacola—City, City Hall, June 28, sanitary sewer imprvs., from W. H. O'Toole, 1714 Lakeview Ave., **$157,785.** CD 6/22.

●N. J., Hackensack—Bergen Co.-Hackensack River Sanitary Sewer Dist. Auth., Bergen Co., Administrative Bldg., Sects. 1 and 1-A Overpeck Valley Joint Sewage Works, from Terminal Constr. Corp., 194 Hackensack St., Woodridge, Contr. 1, **$4,246,775,** Contr. 1-A, **$3,822,589.** CD 6/17.

Tex., Hillsboro—City, received no bids June 30, sewer treatment plant. Approx. **$60,000.** Project postponed indefinitely. CD 6/14.

Wis., Kiel—City, June 28, general contract sewage treatment plant addns., from John Schlise Constr. Co., Sturgeon Bay, **$84,352.** CD 6/15.

Wis., Milwaukee—Sewerage Comn. of City of Milwaukee, Jones Island, Zone 1, June 7, sewage treatment plant addns., No. 512, 143,000 cu. yd. excav. for tanks, from A. Marchese Co., 1737 N. 30 St., Zone 8, **$56,8**'3. CD 6/14.

Wyo., Lander—State of Wyoming, Cheyenne, June 28, sewage disposal plant for state training school, from Wyoming Constr. Co., Laramie. **$71,680.** CD 6/22.

Alaska, Ketchikan—City, City Hall, July 6, 14,000 ft. Ketchikan Creek sewers, 4000 ft. sanitary and storm sewers 4,800 sq. yd. c.conc. paving, from Stateside Constr. Co., 905 10 Ave. S. Seattle, Wash., **$188,401.** CD 6/17.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $28,000; other public works $50,000; industrial buildings $68,000; other buildings $250,000.

Classes of Construction

(Name in order of Listing)

Water Supply	Latin America
Sewers, Waste Disposal	**Public Buildings**
Bridges	Commercial Buildings
Streets & Roads	
Earthwork, Waterways	Industrial Buildings

Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.;

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

† Federal Government
● Project of $1,000,000 or over.
ENR Engineering News-Record
CD Engineering News-Record Construction Daily

CONTRACTS AWARDED

Conn., Waterbury—City, P. Wks. Dpt., City Hall, sanitary sewers Mad River between E. Main St. and Woodland Ave., to Waterbury Constr. Co., 63 Bank St., **$106,480.** Henry C. Whitlock, City Hall, city engr. CD 2/1/46.

La., Shreveport—City, City Hall, laying 24 and 30 in. concrete sanitary sewer force mains, to Blythe Bros. Co., 2911 Hutchinson Ave., Charlotte, N. C., **$182,776.** Bids 6/28, awarded 6/30. CD 7/7.

Tex., San Antonio—City, City Hall, Jimmie Knight, street comr., sanitary sewers, Sect. 2, to H. B. Zachry Co., Box 2570, **$209,385;** Sect. 3, to Colglazier & Hoff, 326 Sequin St., **$227,717.** Bids 6/23, awarded 6/28. CD 6/28, under LB.

Wash., Seattle—Lake City Sewer Dist., c/o J. W. Carey & Assoc., 1917 1 Ave., Zone 1, engr., 7,300 ft. 27 and 30 in. trunk sewers, to Joe Lundberg Constr. Co., 3214 E. Republican St., Seattle, **$164,436.** Est. $170,000. Bids 7/5. CD 6/24.

BRIDGES

BIDS ASKED

Wash., Bellevue — King Co., County-City Bldg., Seattle, Zone 4, rein.-con. box girder on N.E. Lake Washington Blvd., replacing present wooden span, $75,000. Plans deposit $10. D. L. Evans, co. engr.

LOW BIDDERS

●Maryland—State Hy. Dpt., Baltimore, July 5, Piers 1 to 22 inclusive, and Piers 29-31 inclusive, permanent steel forms, on steel H-piles, Alternate 1, Piers 11 to 22 inclusive and Piers 29 to 31 inclusive, permanent steel forms, steel H-piles, Chesapeake Bay Bridge, Contr. CBH 10-2-97, Stevensville and Sandy Point, from Frederick Snare Corp., 233 Broadway, New York, N. Y., Base bid, **$3,666,939,** Alt. 1, **$2,918,518.** CD 6/8.

Missouri—State Hy. Dpt., Jefferson City, rejected bids June 3, bridge over Beaver Dam Creek, Rt. 54, Proj. U 126 (11), Sta. 8 plus 94, Audrain Co., LB, **$90,590.** CD 6/29, under LB.

Wash., North Bend—King Co., County-City Bldg., Seattle, Zone 4, July 5, Howe truss span and pile piers at site of Norman bridge across Middle fork of Snoqualmie River, from Modern Constr. & Fabr. Co., 3516 Airport Way, Seattle, **$52,317.** CD 6/27.

Ont., Toronto—City, H. E. McCallum, mayor, July 5, bridge over Old Kings College Rd., Queens Park Crescent, west side, from Richardson Constr. Co., Ltd., 68 Yonge St. Approx. **$54,782.** CD 6/20.

CONTRACTS AWARDED

†Idaho—Bureau P. Rds., General Services Admin., 609½ Bannock St., Boise, grading, small timber bridge, on concrete fdns., Elk City fly., 30 mi. east of Grangeville, Proj. 18-J, Idaho Co., to Hutchinson Constr. Co., Salem, Ore., **$117,800.** Bids 6/20. CD 6/22.

Maryland—State Hy. Dpt., Baltimore, dual 6 span steel I-beam bridges to carry Washington Baltimore Expressway over Penn. R. R. and Stoney Run, near Baltimore, Contr. AA 368-3-358, Anne Arundel Co., to Brooklyn Eng. Corp., 1100 E. 25 St., Baltimore, **$502,405.** Bids 6/21, awarded 7/7. CD 6/27, under LB.

†Washington—Bureau Public Roads, General Services Admin., Broadway-Oak Bldg., Portland, Ore., pile trestle, concrete deck Baker River bridge near Concrete, Proj. 25-64, Whatcom Co., to Port Constr. Co., Port Angeles, **$52,140.** Bids 7/7. CD 6/27.

Que., Sherbrooke—City, A. Deslauriers, clk., general contract 2,000 ft. concrete bridge and viaduct across St. Francis River, from lower end Galt St. to Joffre St., East Sherbrooke, to R. E. Stewart Constr. Corp., 266 Wellington St. S., and Fabi & Fils, Ltd., 150 Belmont St., approx. **$615,000.** (**Correction**-contractor). CD 6/29, under CA.

STREETS AND ROADS

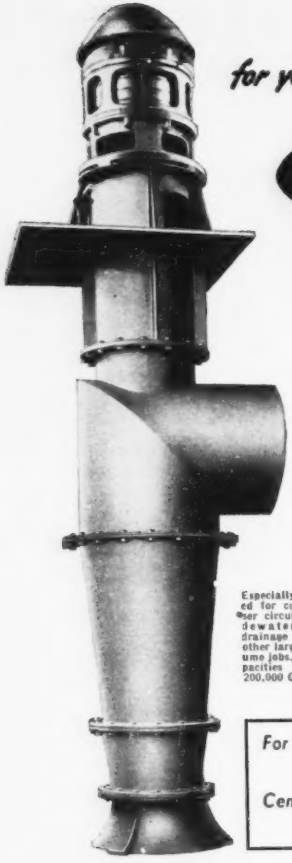
BIDS ASKED

July 28

Kan., Kinsley—City, A. E. Wilson, clk., City Hall, street imprvs., incl. 14,670 sq. yd. rein.-con. pavement, 5,475 lin. ft. 6 in. integral curb, 3,651 sq. ft. 4 in. sidewalks, 7 catch basins, 7 drop inlets, 1 flood gate, 3,107 lin. ft. 18 and 24 in. rein.-con. pipe etc. Plans deposit $20., Ediger Eng. Co., 252 Laura St., Wichita, Zone 7, engr.

Pennsylvania—Pennsylvania Turnpike Comn., J. F. Torrance, secy. and treas., 11 N. 4 St., Harrisburg.

Lancaster Co.—grading, drainage, structures, paving 3.78 mi. Sec. 25- C, East Cocalico and Brecknock Twps. and grading, drain-



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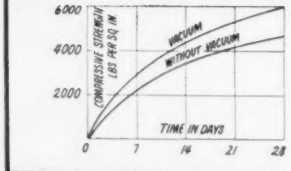

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age, structures, paving 4.75 mi. Sect. 26-A, Brecknock Twp. Plans deposit $10. CD 7/19.

LOW BIDDERS

Calif., Oakland—City, City Hall, July 5, impry. Hagenberger Rd. and 77 Ave., between San Leandro St. and State Hy. Rt. 69, known as East Shore Freeway, from Frederickson & Watson Constr. Co., 873 81 Ave., **$130,704.** CD 6/24.

†**Colorado**—Bureau P. Rds., General Services Admin., 256 New Customhouse, Denver, July 6, 4.28 mi. Cedaredge and Mesa, Colorado Forest Proj. 13-A, Delta and Mesa Counties, from Williams Constr. & Drilling Co., Grand Junction, **$141,248.** CD 6/30.

Fla., Pensacola—City, City Hall, hardsurf. 11 mi. addnl. streets, from Harbert & Cargile, Monroe Park, Mobile, Ala., **$286,560.**

Ill., Chicago—City of Chicago, Dpt. Purchases, Contracts, & Supplies, City Hall, July 5, c. conc. E. 83 St., from S. Maryland to S. Woodlawn Aves., from Chatham Paving Co., 8458 S. State St., **$124,970.** CD 6/29.

Ill., Chicago—Cook Co., County Bldg., June 7, impry. Lehigh Ave., Touhy to Oakton Sts., from Contracting & Material Co., Evanston, **$139,862.**

Maryland—State Hy. Dpt., Baltimore, July 5, modification concrete vertical and horizontal curves, concrete retaining wall, resurf. 3.533 mi. U. S. Rt. 40, Contr. G 192-2-615, Garrett Co., from S. T. Brotemarkle Constr. Co., Cumberland, **$537,059.** CD 6/29; c. conc. surf. 1.555 mi. Laurel by-pass, Contr. HO 202-2-315 and P 461-2-515, Howard and Prince Georges Counties, from Williams Constr. Co., Middle River, **$382,492.** CD 6.22.

Mass., Boston—City, P. Wks. Dpt., City Hall, June 14, sheet asph. resurf. Colchest St., etc., from Walter Reed Corp., 1078 Boyl-

●**Pennsylvania** — Pennsylvania Turnpike Comn., 11 N. 4 St., Harrisburg, grading, drainage, structures 3.825 mi. for Sect. 27 B, Philadelphia Exten. of Pennsylvania Turnpike, beginning at point 800 ft. east of Twp. Rd., 424 in Wallace Twp., then easterly 20,198 ft. to point 600 ft. east of L.R. 147, Upper Uwchland and Wallace Twps., Chester Co., from S. J. Groves & Sons, New Milford, **$2,222,714**

●●●grading, drainage structures, paving 4.18 mi. Sect. 27 C, Philadelphia Exten. of Pennsylvania Turnpike from point 700 ft. west of L.R. 147 in Upper Uwchland, W. Pikeland and Charleston Twps., and grading, drainage, structures and paving 4.43 mi. Sect. 28A of Philadelphia exten. of Pennsylvania Turnpike from point 100 ft. east of L. R. 15189 in Charlestown Twp. easterly 23,377 ft. point 1400 ft. east of L. R. 15134, Charlestown Twp., Chester Co., from Lane Constr. Co., 37 Colony St., Meriden, Conn., **$4,881,238.** CD 6/3.

Tex., Fort Worth—City, W. O. Jones, mgr., June 30, 1½ in. hot mix b. conc., resurf. certain streets in various parts of town from Texas Bitulithic Co., N. W. 5 St., **$58,860.** Est. $70,000. CD 6/14.

Tex., Pasadena—City, City Hall, June 29, rein.-con. paving, various streets and flex. base topping, from Holland Page, Baytown, **$52,200.** Est. $70,000. George H. Smith, city engr.

CONTRACTS AWARDED

Ia., Council Bluffs—City, City Hall, paving 5 Ave. from 24 to 37 Sts., to National Constr. Co., 1335 S. 20 St., Omaha, Neb., **$90,659**; repaving 5 Ave. from Pearl to 24 Sts., to Flinn Paving Co., 1800 Howard St., Sioux City, **$53,532.** Bids 6/27. CD 7/6/48.

Ia., Sioux City—Woodbury Co., Sioux City, grading, culverts, Divs. 1 and 2, to Clark Bros. Constr. Co., Hinton, **$81,473.** Bids 6/27. CD 6/22.

●**Maryland**—State Hy. Dpt., Baltimore, grading, draining, surf., reconstruction 6.939 mi. U.S. Rt. 40, Contr. A 407-1-615 and W. 392-1-615, Washington and Allegany Counties, to M. J. Grove Lime Co., Lime Kiln, **$2,090,212.** Bids 6/21, awarded 7/7. CD 6/27, under LB.

Maryland—State Hy. Dpt., Baltimore, modification concrete vertical and horizontal curves, concrete retaining wall, resurf. 3.533 mi. U.S. Rt. 40, Contr. G 192-2-655, Garrett Co., to S. T. Brotemarkle Constr. Co., Cumberland **$537,059.** Bids 7/5, awarded 7/7. CD 7/11, under LB.

●**Md., Baltimore**—Mayor & City Council, City Hall, Potee St. extens., over Potapsco River, to McLean Contg. Co., 1501 Fidelity Bldg., **$1,397,200.** Bids 6/29, awarded 7/6. CD 7/6, under LB.

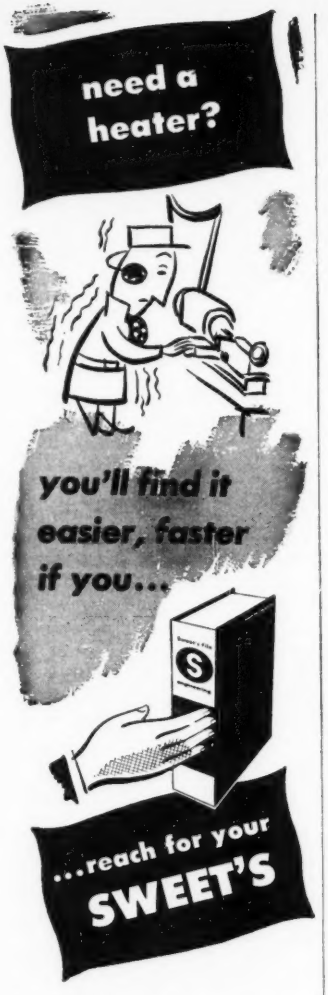
Miss., Meridian—City, City Hall, resurf. various streets, to Cobb Bros. Constr. Co., Meridian, **$244,016.** Bids 6/29.

Missouri—State Hy. Dpt., Jefferson City, rolled stone base and seal, 4.537 mi. road from Iowa state line to Tarkio, Rt. 59, Proj. F 771 (5)-B, Atchison Co., to Reno Constr. Co., Overland Park, Kan. **$109,026.** Bids 6/3, awarded 7/7. CD 6/9, under LB.

†**Montana**—Bureau P. Rds., General Services Admin., Missoula, b. conc. 23,518 mi. U. S. Hy. 93, at summit Rocky Mountains, 100 mi. south of Missoula, Proj. 19-A3, B2, D3, F3, F2, Ravalli Co., to Glen Gerry, Missoula, **$87,203.** Bids 6/20. CD 6/22.

†**Ohio**—U. S. Engr., Madison Ave. and 8 St., W., Huntington 18, W. Va., reconstructing 5 roads, Delaware Reservoir Proj., Olentangy River, Serial No. Eng-46-022-49-144, to Plumley Trucking & Excavating Co., Marion, **$91,868.** Est. $98,327. Bids 6/9. CD 5/20.

Okla., Ponca City—City, concrete paving 14 blocks residence streets, to Standard Paving Co., 2119 E. 11 St., Tulsa, **$66,756.** Est.



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$67,000. Awarded 7/6. V. S. Thompson, 1100 W. Main St., Oklahoma City, engr.

Tex., Laredo—Webb Co. Courthouse, Laredo, farm-to-market road and timber bridge work, Precinct 1, Approx. **$75,000**; Precinct 4, **$85,000**, force account.

Tex., Taylor—Williamson Co., c/o Judge, Courthouse, Georgetown, 40 mi. gravel and 40 mi. red sand surf. roads in Southern Half Precinct 4, own forces. **$315,000**. CD 5/9.

†**Utah, Tooele**—U. S. Eng., 74 New Montgomery St., San Francisco 19, Calif., bit. and c. conc. 1 mi. roadway in connection with Tooele Ordnance Depot, to Pritchard Constr. Co., Provo, Approx. **$61,000**. Bids 6/21. CD 6/13.

Va., Waynesboro — City, paving various streets, to Adams & Tate Constr. Co., 2725 Roanoke Ave., Norwich, Roanoke, **$85,700**.

●**Alta. Edmonton**—Municipality, road constr. and repair, business and traffic arteries, residential streets, own forces, **$1,650,000**. James Mac Donald, city engr.

Que., Longueuil—City, W. Gagnon, secy., sidewalks and street paving, various locations, to Abias Pepin Ltd., 155 St. Charles St., W., Approx. **$88,951**.

EARTHWORK, WATERWAYS
BIDS ASKED

About July 26

†**Ohio**—U. S. Eng., Madison Ave. and 8 St. W., Huntington 18, W. Va., channel paving Pump Station 5 and Millbrook Lake control structures, Local Protection Proj., Portsmouth-New Boston.

July 26

†**Ohio**—U. S. Eng., Madison Ave. and 8 St. W. Huntington 18, W. Va., channel paving Pump Station 5 and Millbrook Lake Control Structures, Local Protection Proj., Portsmouth-New Boston. Serial No. CIVENG-46-022-50-1. CD 7/1.

About July 28

†**Ohio**—U. S. Eng., Madison Ave. and 8 St. W., Huntington, W. Va., Pump Stations 1, 3, tions 2, 4, 5 and 6 and equip. installation, Local Protection Proj., Portsmouth-New Boston. Plans deposit $5. Bids 6/16 rejected. LB **$891,691**. CD 6/30, under LB.

July 29

†**Oregon**—U. S. Eng., 19 E. Poplar St., Walla Walla, Wash., two 3,750 kva. alternating-current generators and appurtenances for McNary Powerhouse, Serial No. Eng-45-164-49-121.

About August 2

†**Ohio**—U. S. Eng., Madison Ave. and 8 St. W., Huntington, W. Va., Pump Stations 1, 3, 7, 8, 9, 10, 11 and 12, equip. installation, Local Protection Proj., Portsmouth-New Boston. Plans deposit $5.

†**Washington**—U. S. Eng., 19 E. Poplar St., Walla Walla, levees along north bank Yakima River and along west bank Columbia River in vicinity of Richland, Benton Co., Serial No. Eng. 23-06549-146. CD 6/21.

August 3

†**Minnesota**—U. S. Eng., 1217 U. S. Post Office & Custom House, St. Paul, Zone 1, bank protection work, at Landward Lock, Lock and Dam 2, Mississippi River, Hastings; adv. ENR 7/21. CD 7/8.

About August 4

†**Texas** — Lower Colorado River Auth., Richard R. Smith, Jr., Purch. agt., P.O. Box 1153, Austin, Granite Shoals Proj. with gross head of 87 ft. incl. concrete spillway, concrete powerhouse, gravity and reinforced walls, earth dam, appurtenances, on Colorado River in Burnet Co., approx. 4.5 mi. above town of Marble Falls; Marble Falls Proj. 57 ft. gross head, incl. concrete spillway, concrete spillway, concrete powerhouse, appurtenances, on Colorado River in Burnet Co. Plans deposit $30.

About August 9

†**Iowa**—U. S. Eng., 1217 U. S. Post Office & Custom House, St. Paul 1, Minn., upper approach channel dredging Lock and Dam 10, Mississippi River, at Guttenberg, incl. approx. 350,000 cu. yd. dredging.

†**South Dakota**—U. S. Eng., 1709 Jackson St., Omaha 2, Neb., mfg., del. in carload lots, for railroad cars at Lake Andes, intake gates for Fort Randall Dam on Missouri River, near Lake Andes, Serial No. Eng-25-006-49-253. CD 5/24 —ENR 5/26.

August 16

†**Virginia**—U. S. Eng., foot of Front St., Norfolk, oil circuit breakers, Bugga Island Proj., Roanoke River, Mecklenburg Co., Serial No. Eng-44-110-49-214.

LOW BIDDERS

Calif., Long Beach—City, City Hall, June 28, 44 circular sheet steel piling cells, from Guy F. Atkinson Co., P. O. Box 259, **$448,670**. CD 6/10.

†**Conn., Greenwich**—U. S. Eng., Army Base, Boston 10, Mass., June 23, dredging 255,000 cu. yd. Greenwich Harbor, from Elliott & Watrous, Inc., Crest Ave., Riverside, R. I., **$176,640**. CD 5/23.

†**Conn., Norwalk**—U. S. Eng., Army Base, Boston 10, Mass., June 23, dredging 184,000 cu. yd. Norwalk Harbor, from Elliott &

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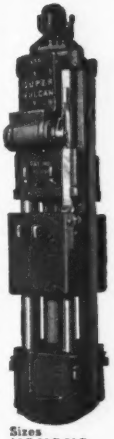

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Watrous, Inc., Crest Ave., Riverside, R. I., **$118,800.** CD 5/23.

†Louisiana—U. S. Eng., foot Prytania St., New Orleans, July 6, approx. 300,000 cu. yd. dredging, St. Mary Parish, Serial No. Eng. 16-047-49-326, from Sam Carline, Berwick, **$44,670.** CD 6/8.

†Maryland—U. S. Eng., 121 N. Broad St., Phila., 1, Pa., cancelled bids to have been opened July 12, stabilizing south bank Chesapeake and Delaware Canal, approx. 4 mi. west of Chesapeake City, Serial No. Eng. 36-109-49-128. CD 6/16.

†Nebraska—U. S. Eng., 1709 Jackson St., Omaha, rejected bids June 29, agricultural levees, Unit R-548, Sects. 1 and 2 near Brownville, Serial No. Eng. 25-066-49-287. LB. **$361,900.** CD 6/16.

†Washington—U. S. Eng., Pittock Block, Portland 5, Ore., rejected bids June 24, levee imprv. in Wahkiakum Diking Imprvt. Dist. 4, along levee on south side of district, 1 mi. southeast of Skamokawa, Eng-35-026-49-561, Wahkiakum Co. L. B. **$64,375.** CD 6/30, under LB.

†Washington—U. S. Eng., 19 E. Poplar St., Walla Walla, July 1, designing, turnishing, installing, testing sluice gate for Mill Creek Flood Control Proj., Serial No. Eng-45-164-49-112, from McWaters & Bartlett, Boise, Idaho, **$40,737.** Est. $39,277. CD 6/21.

†Wyoming—Bureau Reclamation, Dpt. Interior, Cody, rejected bids Mar. 11, earthwork, canal lining and concrete siphon, Station 24 plus 93.50 to Station 34 plus 54.98 Willwood Canal relocation, Willwood Div., Shoshone Proj., Spec. 2559. L. B. **$145,702.** CD 3/18, under LB.

CONTRACTS AWARDED

●†California—Bureau Reclamation, Dpt. Interior, Tracy, earthwork, concrete lining and structures, Station 2149-plus 80 to Station 3024 plus 80, Delta Mendota Canal, Central Valley Proj., Spec. 2649, to Western Contg. Corp., Hubert Everist Sr., Box 100, Westley, **$1,165,764.** Bids 6/7, awarded 7/5. CD 6/14, under LB.

†Connecticut—U. S. Eng., Army Base, Boston 10, Mass., maintenance dredging in Thames River, to Morris & Cummings Constr. Co., Inc., 44 Whitehall St., New York, N. Y., **$246,600.** Bids 6/28. CD 1/22.

†Ind., New Albany—U. S. Eng., 830 W. Broadway, Louisville, Ky., flood protection Sect. 1, Part 2, to Vest & Bartell, 4438 Appleton St., Cincinnati, O., **$947,645.** Bids 6/21, awarded 6/29. CD 6/27, under LB.

†Ia., Decorah—U. S. Eng., 1217 U. S. Post Office & Custom House, St. Paul 1, Minn., diversion channel and upper Iowa River Channel and imprvs., Serial No. Eng. 21-018-49-102, to Otto B. Ashbach & Sons, 2875 Hamline Ave., St. Paul, Minn., **$507,430.** Est. $415,211. Bids 6/27. CD 7/1, under LB.

†Ky., Louisville—U. S. Eng., 830 W. Broadway, flood protection Sect. A, Part 1, to Terry-Steadman, Co., Bay City, Mich., **$936,590.** Bids 6/24, awarded 6/29. CD 6/28, under LB.

New York—Dpt. P. Wks., Albany, guard gates on Barge Canal, Little Falls, Herkimer Co., to S. A. Scullen, Inc., Waterford, **$534,500.** CD 6/7, under LB. Bids 6/1.

●†Oregon—U. S. Eng., 628 Pittock Block, Portland, Zone 5, design, mfg. and del. f.o.b. cars Gates, two 70,000 hp. hydraulic turbines for Detroit Dam on North Santiam River, Marion Co., Serial No. Eng. 35-026-49-491, to Baldwin Locomotive Works, Chester Park and Simpson Sts., Phila., Pa., Bids 6/22, awarded 6/5. CD 6/27, under LB.

†Washington—Bureau Reclamation, Dpt. Interior, P.O. Box 1377, Federal Bldg., Yakima, rehabilitation Tieton Dam and spillway, approx. 30 mi. west of Yakima, Spec. R1-43, to A. J. Cheff, Moses Lake, **$265,660.** Bids 6/2, awarded 7/1. CD 5/5.

†Washington—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., riverbank slope, protection at Grand Coulee Dam, Columbia Basin Proj., Spec. 2636, to J. A. Terteling & Sons, Inc., 4011 Fairview Ave., Boise, Idaho, **$412,739.**

†Washington—Bureau Reclamation, Dpt. Interior, Coulee Dam, repair and construct surface drainage facilities in vicinity of Grand Coulee Dam, Spec. R1-CB-26 (Region 1), Columbia Basin Proj., to Don Atkins, Inc., Ellensberg, **$42,718.** Bids 6/22, awarded 6/29. CD 6/15.

Ont., Port Arthur—Dpt. P. Wks., Hunter Bldg., Ottawa, breakwater repairs, to Canadian Dredge & Dock Co. Ltd. Harbour Commissioners Bldg., Toronto. Approx. **$163,750.** Bids 6/29. CD 6/30.

AIRPORTS AND AIRBASES

BIDS ASKED

†Fla., Tampa—SYSTEM FACILITIES—U. S. Eng., Post Office Bldg., Savannah, Ga., ground control approach system facilities at MacDill Air Force Base. Plans deposit $10. CD 6/16, under LB.

LOW BIDDERS

†Calif., Moffett Field (near Sunnydale)—SHOP—National Advisory Com. for Aeronautics, Ames Aeronautical Laboratory, Moffett Field, July 5, metal fabrication shop at Ames Aeronautical Laboratory, from Carrico & Gautier, 365 Ocean Ave., San Francisco, **$210,120.** CD 5/20.

La., Baton Rouge — ADMINISTRATION BLDG.—City, City Hall rejected bids May 19, administration bldg., Harding Field, L. B. **$518,000.** CD 5/26, under LB.

CONTRACTS AWARDED

N. Y., Schenectady—HANGAR—U. S. Eng., 120 Wall St., New York, Zone 5, hangar at airport, Schedule 1, to Langefinn Constr. Co., 552 Broadway, Albany, **$253,871*****Schedule 2 and 3, to Joseph L. Muscarello, 41 First St., Hackensack, N. J., **$155,200*****Schedule 5, to Thompson Constr. Co., 11 N. Pearl St., Albany, **$152,927.** Bids 6/2. CD 6/7, under LB.

●†R. I., Quonset Point—OVERHAUL and REPAIR BLDG.—Officer in Charge of Constr., Naval Base, P. Wks. Bldg., Quonset Point, Items 5, 11, 12, 13, 14, 25, 26, 28 and 30, engine overhaul extens. to Q and R Bldg., Spec. 22366, to Ayers-Hagan, Inc., 35 Westminster St., Providence, R. I., **$1,759,071.** Bids 6/20, awarded 7/6. CD 5/28, under LB.

†Utah, Salt Lake City—PARKING APRON—U. S. Army, National Guard Bureau, Fort Douglas, parking apron extens. at Salt Lake Municipal Airport, to Gibbons & Reed, 259 W. 3 South St., **$91,195.** Bids 6/16.

PUBLIC BUILDINGS

BIDS ASKED

Kan., Ulysses — HOSPITAL — Grant Co., Ulysses, hospital, Approx. $260,000. Mann & Co., Hutchinson, archts. CD 6/28.

O., Youngstown—SCHOOL—Bd. Educ., 20 W. Wood St., Williamson School. $600,000. Plans deposit $1,000,000. Morris W. Scheibel & Wilbert H. Shaffer, 1301 Realty Bldg., archts. CD 3/18, under LB.

†Va., Quantico — AUTOMOTIVE SERVICE CENTER—Pub. Wks. Office, Marine Corps School, Quantico, automotive service center at Marine Corps Schools, Spec. No. 22798. Plans deposit $20.

July 27

●Ky., Louisville—SCHOOL—Bd. Educ., 508 W. Hill St., Hazelwood school, Bluegrass and Lenty Aves. $1,000,000. Plans deposit $25. Joseph & Joseph Speed Bldg., archts. and engrs. CD 2/11/48.

●Mass., Watertown — HOUSING — Town of, of Watertown Housing Auth., Admin. Bldg., 144 unit 2 story housing, Lexington St. $1,380,000. Plans deposit $25. Edward Sears Read & Assoc., 177 State St., Boston, archts. CD 10/1.

Miss., State College — GYMNASIUM — State Bldg. Comn., New Capitol Bldg., Jackson, gymnasium, Mississippi College, $550,000. CD 6/22/48.

●Pa., Harrisburg—Pennsylvania Dpt. Property & Supplies, 18 and Herr Sts., female disturbed patients bldg. at Harrisburg State Hospital, $1,117,000. Plans deposit $15. Lawrie & Green, 521 N. Front St., archt. W. B. Jefferis, ch. engr. CD 2/25.

●Del., Wilmington—U. S. Eng., 121 N. Broad St., Phila. 1, Pa., 4 separate quarters bldg. for Veterans Admin. Hospital. CD 3/24—ENR 3/31.

July 28

●Ala., Florence—HIGH SCHOOL—Bd. Educ., Florence, high school. $1,000,000. Plans deposit $50. Charles H. McCauley, Jackson Bldg., Birmingham, archt. CD 1/31/46.

●Colo., Pueblo—Colorado State Hospital, c/o Dr. F. H. Zimmerman, Pueblo, 6 story 80x350 ft., rein.-con. face brick 360 senile patient hospital, $1,250,000; 4 story, rein.-con., face brick 300 female patient hospital, $1,000,000. Bid date changed. W. Gordon Jamieson & R. Ewing Stiffler, 818 17 St., Denver, Earl C. Morris, 518 Empire Bldg., Denver and Walter De Mordaunt, 738 Thatcher Bldg., Pueblo, archts. CD 4/8.

●Del., Wilmington—QUARTERS—U. S. Eng., 121 N. Broad St., Phila., 1, Pa., 4 separate quarters bldg. for Veterans Admin. Hospital, for Veterans Admin., Vermont Ave. between H and I Sts. N. W., Wash., 25, D. C. CD 6/14.

●Oklahoma—PROJECT BUILDINGS—U. S. Eng., P. O. Box 61, Tulsa, Zone 2, project buildings, Tenkiller Ferry Dam, Illinois River, Inv. No. Eng-34-066-49-144. Extended date. CD 6/30.

●Tenn., Knoxville — HIGH SCHOOL — Bd. Educ., 624 Lamar St., Fulton High School. Approx. $1,000,000. Extended date. Barber & McMurray, 2375 Kingston Pike, archts. CD 6/8.

†Washington—Bureau Reclamation, Dpt. Interior, Bldg 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. Coulee Dam, one horizontal motor-generator exciter set, consisting of 6,600 volt, 900 r.p.m., 3 phase, 60 cycle, unity-power-factor, synchronous motor direct current exciter with nominal rating of 1,600 amperes at 250 volts and pilot exciter for units L-1 to L-6 inclusive, Grand Coulee Power Plant, Columbia Basin Proj. Spec. 2712.

July 29

Conn., Wallingford — HOUSING — Wallingford Housing Auth., Wallingford, 28 frame family units, $250,000. Plans deposit $25, refundable. C. R. Blanchard Jr., 85 Whitney Ave., New Haven, and C. W. Bailey, 152 N. Main St., archts. CD 3/17.

Ind., Marion — SCHOOL — City, City Hall, West Side School, $350,000. McGuire & Shook, 1400 Fletcher Trust Bldg., Indianapolis, archts. CD 6/25/45.

N. Y., New York—HOUSE IMPRVS.—New York City Housing Auth., 63 Park Row, Zone 7, topsoil and planting for Governor Alfred E. Smith Houses (part of Proj. No. NYS-23), comprising Sect. 1, in area bounded by South St., Catherine slip, south side of Cherry St., south side of New Chambers St., New Bowery, Pearl St. and Brooklyn Bridge, Manhattan Boro. Plans deposit $25.

O., Cincinnati—MEDICAL—Dpt. P. Wks., G. B. Sowers, dir., Ohio Dpt. Bldg., Columbus, medical bldg. at Longview State Hospital. Mueller, Hair & Hetterich, Hamilton Hotel, Hamilton, archts. and engrs. CD 10/13/48.

Wash., Cheney — DORMITORY — Eastern Washington College of Educ., Cheney, women's dormitry, $700,000. Plans deposit $15. G. M. Rasque & Son, Washington Trust Bldg., Spokane, archts. CD 2/15.

Wis., Winnebago—BOILER PLANT—State Dpt., P. Welfare, Madison, 1 story, bsmnt., 61x190 ft., 50 ft. high, steel, brick, boiler plant, concrete fdn. and floor, chimney. Plans deposit $50. Gates, Moe, Weiss & Papenthien, 811 N. Broadway, Milwaukee, Zone 2, archts. CD 12/14.

July 30

Calif., Fullerton—SCHOOL—Fullerton Union High School Dist., Fullerton, two 30x165 ft. rein.-con. bldgs. $440,000. W. H. Harrison, 816 W. 5 St., Los Angeles, archt. CD 12/16/48.

August

Mich., Newberry—State of Michigan, State Bldg., Lansing, Zone 13, 2 cottages, 2nd unit storage bldg., etc. Newberry State Hospital. $243,000.

About August 1

Ala., Cullman—SCHOOL—City Bd. Educ., Cullman, school. Over $2,500,000. Van Keuren, Davis & Co., American Life Bldg., Birmingham, archts. CD 3/17.

Mich., Kalamazoo—State of Michigan, State Bldg., Lansing, Zone 13, receiving hospital. State Hospital, $900,000.

August 1

●Nev., Reno — HIGH SCHOOL — Reno School Dist. 10, 139 W. 6 St., 1 and 2 story high school bldgs. for 1,500 students. $2,500,000. Plans deposit $125. Ferrig & Erskine, 577 La Rue St., archts. Harold M. Engle, 110 Sutter St., San Francisco, Calif., engr. CD 9/21/48.

August 2

†Idaho, Mountain City—SCHOOL—Office of Indian Affairs, C St., between 18 and 19 Sts. N. W., Wash., D. C., school for Western Shoshone reservation. $200,000. C. A. Popkin, Bldg. 34, Swan Island, Portland, Ore., regional constr. engr.

†La., New Orleans—U. S. Eng., foot Prytania St., 10 story main bldg., U. S. Veterans Admin. Hospital. Extended date. CD 5/9.

Mass., Lowell — NURSES HOME — Lowell General Hospital, 295 Varnum Ave., 5 story, bsmnt., brick nurses home, $750,000. James H. Ritchie & Assoc., 38 Newbury St., Boston, archts. CD 12/9.

August 3

N. C., Burlington — HIGH SCHOOL — The Burlington Administrative Unit, L. E. Spikes, supt., Burlington, high school. Plans deposit $100 general, $50, plumbing, heating and electrical work. R. R. Markley, Box 184, Durham, and Harold A. Watson & Hall, Greenbrier Ave., Greensboro, engrs. CD 6/30/48, under LBs.

Alta., Calgary—SCHOOL—G. R. Gell, secy., School Bd., 7 - 4 Ave., school. Plans deposit $5. W. A. Branton, c/o owner, archt. CD 9/18/47.

N. B., Saint John—POST OFFICE—J. M. Somerville, secy., c/o Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., 3 story, bsmnt. post office, addns., alterations. Approx. $500,000. Plans deposit $200. G. Brault, c/o owner, archt. CD 6/30.

●Que., Montreal—POSTAL TERMINAL—J. M. Somerville, secy., Dept. P. Wks., Hunter Bldg., Ottawa, Ont., 6 story, bsmnt., 125x166 ft., concrete, steel, brick addns., alterations. Postal Terminal. Approx. $2,000,000. G. Brault, c/o owner, and J. J. Perrault, 3737 Van Horne Ave., archts. Brouillet & Carmel, 3605 St. Denis St., engrs. CD 11/9/44.

LOW BIDDERS

Calif., Earlimart—SCHOOL—Earlimart Elementary School Dist., Earlimart, June 30, school, from Trewhitt, Shields & Fisher, 926 Parallel St., Fresno, **$439,600.** CD 5/12/48.

Conn., Wilton—SCHOOL—Town Bd. Selectmen, Town Hall, June 27, 2 story, basmnt., brick, steel school, from Frouge Constr. Co., 74 Goodsell St., Bridgeport, **$472,000.** CD 6/16.

●D. C., Wash.—PEDIATRIC—Dist. Comrs., District Bldg., July 7, pediatric addn. and crippled children's bldg., Gallinger Hospital, from Joseph F. Nebel Co., 2142 P St. N.W., Wash., D. C., **$1,384,000.** CD 6/17.

●Ill., Chicago — HOUSING — Chicago Housing Auth., 343 S. Dearborn St., July 8, 132 unit housing, incl. two 7 story brick bldgs., Site 6,

(Continued on page 90)

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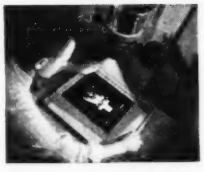

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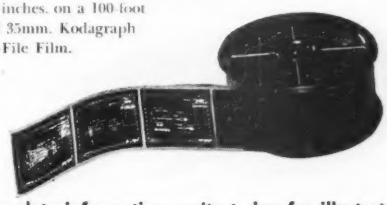

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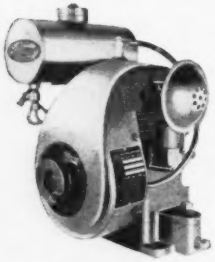

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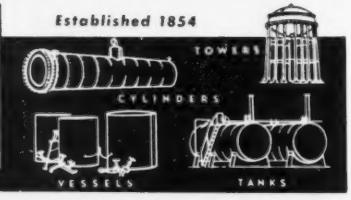


(Continued from page 88)

Van Buren and Maplewood Sts., from S. N. Nielsen Co., 3059 W. Augusta Blvd., **$1,029,000.** CD 6/13.

Ill., Wilmette — SCHOOL — Wilmette Bd. Educ., Wilmette, June 24, general contract 2 story, stone, brick, steel, concrete central school, from Axel E. Johnson, 4041 N. Kilbourn Ave., Chicago, **$367,000.** CD 6/13.

Ind., Westville — HOSPITAL — Indiana Dpt. F. Wks. & Supply, 404 State House, Indianapolis, Apr. 20, general contract 4 patient housing units, Northern Indiana Hospital, from Permanent Constr. Co., 208 S. LaSalle St., Chicago, Ill., **$939,300.** CD 4/13.

Kan., Eudora — SCHOOL — School Dist. 89, Eudora, June 29, general contract school, from Constant Constr. Co., Lawrence, **$349,900.** Est. $343,000. CD 6/22.

♦Ky., Paducah—STRONG ROOM, etc.—Dpt. Army, National Guard Bureau, Bldg. T-29, Bowman Field, Louisville, received no bids May 9, strong room, supply rooms, Kentucky National Guard. CD 4/15.

La., Ruston—COURT HOUSE—Lincoln Parish Police Jury, Ruston, July 6, 5 story, reinforced concrete, brick, court house, from Southern Builders, Inc., Hunter Bldg., Shreveport, **$581,572.** CD 6/14.

Me., Augusta — HOSPITAL — State, State House, June 28, surgical and infirmary bldg., State Hospital for Insane, from H. P. Cummings Constr. Co., Winthrop, **$303,698.** Bunker & Savage, 283 Water St., archts., Hayden-Harding-Buchanan, Park Sq. Bldg., Boston, Mass., elec. engrs. CD 6/27/45.

Mass., New Bedford — HOUSING — City of New Bedford Housing Auth., New Bedford, June 30, housing, 200-1 Rockdale Ave., Parker St. and Hathaway Blvd., from Sullivan-Foster, Inc., 43 Williams St., **$840,480.** CD 6/15.

Minn., Canby—HIGH SCHOOL—Bd. Educ., C. S. James, clk., City Hall, rejected bids June 28, 2 story, brick, stone high school addn. CD 6/8.

♦N. M., Albuquerque—LABORATORIES—U. S. Eng., Box 1538, June 29, remodeling, addns. to 5 or more West Laboratories, masonry constr., Serial No. 291-49-181, from J. D. Leftwich Constr. Co., P. O. Box 519, Lubbock, Tex., **$106,111.** CD 6/22.

♦N. M., Albuquerque—RESIDENCES—U. S. Eng., P. O. Box 1538, frame and stucco or 8 in. masonry with brick veneer residences at Sandia Base, Serial No. Eng-29-065-49-103, from Midland Home Owners Loan Corp., Midland, Tex., **$205,361.** CD 6/14.

●♦N. M., Los Alamos — BUILDINGS — U. S. Atomic Energy Comn., Los Alamos, June 27, buildings and related services in Area TA-36, Inv. No. 391-46-166, from Robert E. McKee, P. O. Box 1706, Santa Fe, **$837,306.**

N. C., Durham—HIGH SCHOOL—Bd. Educ., L. S. Weaver, supt., City Schools, Negro High School, from Crain & Denbo, Durham, **$526,890.** George F. Hackney, Durham, archt. CD 7/19/47.

O., Lowellville—SCHOOL—Bd. Educ., Fred Meehan, clk., High School Bldg., rejected bids June 17, replacing central sect., etc. Lowellville High School, L.B. **$309,247.** Will re-advertise. CD 6/23, under LB.

Pa., Meadville — HIGHWAY MAINTENANCE—Dpt. Property & Supplies, 18 and Herr Sts., Harrisburg, June 29, general contract, highway maintenance bldg. for State Hys. Dpt., from Montgomery Constr. Co., 803 W. Main St., Grove City, **$357,240.** CD 6/8.

Pa., Philipsburg—COAL SILO, etc.—Dpt. Property & Supplies, 18 and Herr Sts., Harrisburg, June 29, general contract, coal silo, chimney and ash silo for relocated boiler plant and enlarged laundry at Philipsburg State Hospital, from Paul A. Martin, Donegal Rd., Mt. Joy, **$115,752;** heating, from Wertz Eng. Co., 441 N. 2 St., Reading, **$106,716.** CD 6/3.

Tex., Fort Worth — HIGH SCHOOL — Fort Worth Public Schools, Ed. P. Williams, bus. mgr., July 6, Riverside Junior High School, Riverside Dr., from Paden Constr. Co., Burk Burnett Bldg., **$387,000.** CD 6/14.

Wash., Olympia—SCHOOL—School Dist. 320, Olympia, June 30, general contract 1 story, 68x566 ft. and 68x147 ft. steel, masonry and concrete McKinley School, from Strand & Son, 3941 University Way, Seattle, Zone 5, **$398,800.** CD 6/15.

CONTRACTS AWARDED

Conn., Bridgeport—GARAGE—City, Bd. Police Comrs., Police Station, Fairfield Ave., 2 story, 60x115 ft. brick, concrete, steel garage, for motor vehicles, repairing, Fairfield Ave., to DiPetro Constr. Co., 325 Chamberlain Ave., Approx. **$75,000.**

●Conn., Hartford—HOUSING—City of Hartford Housing Auth., 846 Asylum Ave., 59 bldgs., 410 apartments, Proj. MP-17, to Associated Constr. Co., 1016 Wethersfield Ave., Hartford, **$3,595,000.** Bids 6/24. CD 7/6, under LB.

●Conn., Milford—SCHOOL—Town, J. A. Foran, supt. of School, Town Hall, 2 story, bsmt. high school, incl. gymnasium, cafeteria, library, etc., W. Main and W. River Sts., to Frouge Constr. Co., 74 Goodsell St., Bridgeport, **$2,032,177.** Bids 6/20. CD 7/6.

○Ill., Chicago—HOUSING—Chicago Housing Auth., 343 S. Dearborn St., Zone 3, three 7 story rein.-con., brick bldgs., incl. 126 units, Harrison and Francisco Sts., to George Sollitt Constr. Co., 109 N. Dearborn St., **$963,030.** Awarded 6/30. CD 12/17.

Ky., Paris—HOSPITAL—Bourbon Co., Paris, hospital, to Perkins & Gray, Ashland, **$513,000.** Bids 6/30. CD 7/7, under LB.

●**La., Shreveport**—MEDICAL CENTER—Confederate Memorial Medical Center, Shreveport, 10 story Confederate Memorial Medical Center to J. A. Jones Constr. Co., 753 Gladstone Blvd. **$6,029,000.** CD 6/14, under LB.

●**Mass., Brockton**—HOUSING—City of Brockton Housing Auth., S. Sherman, chn., City Hall, veterans housing, Proj. 200-1, Eaton and Cross Sts., off Prospect St., to Platt Contg. Co., Inc., 99 First St., Cambridge, **$1,009,000.** Bids 6/29, awarded 7/1. CD 6/8.

Mo., Springfield—STUDENT UNION—Southwest Missouri State College, Bd. Regents, Walter I. Baker, secy., brick, concrete, stone Student Union bldg., to Seth E. Giem & Assoc., Land Bank Bldg., **$544,477.** Bids 6/28. CD 6/14.

Neb., Fremont—POWER PIPING—City c/o Bd. P. Wks., Office of Dpt. Utilities, power piping for municipal power plant, to Wray M. Scott Co., 2809 Dodge St., Omaha, **$85,600.** CD 5/31.

●**N. M., Los Alamos**—APARTMENTS—U. S. Atomic Energy Comn., Los Alamos, 438 concrete, frame duplex apartments & appurtenances, Serial No. Eng-291-49-134, to Haddock Engineers, Ltd., & Assoc. Santa Fe, Scopes A and B, **$5,405,760.** Bids 6/15, awarded 7/8. CD 7/1, under LB.

●**N. Y., Brooklyn**—SCHOOL—Supt. of School Bldgs., Design & Construction, 49 Flatbush Ave. exten., July 6, Zone 1, P. S. 44, Throop Ave. between Monroe and Madison Sts. to John T. Brady & Co., 606 W. 47 St., New York, Zone 19, **$1,365,000.** CD 6/9.

N. Y., Colton—SCHOOL—Bd. Educ., Central School Dist., Colton, central school, to Frechette & Clough, Tupper Lake, **$409,549.** Bids 6/15. CD 6/6.

●**N. Y., Rochester**—CONVENTION HALL—Pub. Wks. Office, Third Naval Dist., Hudson Terminal Bldg., 50 Church St., New York, Zone 7, remodeling convention hall and annex, Naval Reserve Training Center, Contr. NOY 17820, Spec. 21482, to Villard Constr. Co., 28 Main St., Hastings on Hudson, **$301,389.** Bids 6/23. CD 6/16.

N. Y., Valley Stream—SCHOOL—Bd. Educ., Union Free School Dist. 30, Valley Stream, school, to Edward Corning Co., 204 E. 39 St., New York, 16, **$539,000.** Bids 6/14. CD 6/17, under LB.

Pa., Harrisburg — ADMISSION — Dpt. Property & Supplies, 18 and Herr Sts., general contract admission bldg., Harrisburg State Hospital, to H. B. Alexander & Son, 315 Vaughn St., **$791,497.** CD 5/18.

Tenn., Chattanooga — SCHOOL — Hamilton Co. Bd. Educ., Chattanooga, Elbert S. Long School, to Verhey Constr. Co., Vine and Holly Sts., **$288,636.** CD 6/24, under LB.

Tex., Houston — LIBRARY — University of Houston, 705 Fannin St., Houston, M. D. Anderson Memorial Library, to Southwestern Constr. Co., 4949 Rusk St., **$862,000.** Bids 6/28, awarded 7/6. CD 6/24.

Wash., Pullman—POWER PLANT—Washington State College, Pullman, completing power plant, boiler unit, to Wyatt & Kipper, 3312 Airport Way, Seattle, **$180,925.**

●**Que., Mount Royal (Postal Dist. Montreal)**—SCHOOL—Protestant School Comn., Mount Royal, 2 story, bsmnt., 211x375 ft., rein.-con., brick, stone school, to Pentagon Constr. Co. Ltd., 1225 Bishop St., Montreal, **$1,500,000.** Bids 6/14. CD 5/12.

COMMERCIAL BUILDINGS

July 26

BIDS ASKED

N. C., Reidsville—OFFICE—Southern Bell Telephone & Telegraph Co., Inc., E. C. Houston, ch. engr., 51 Ivy St. N. E., Atlanta, Ga., 2 story, 175 sq. ft., rein.-con. dial and toll office, J. N. Pease & Co., Inc., 119½ E. 3 St., Charlotte, archts. and engrs.

July 29

Ala., Birmingham—CHURCH—First Church of Christ, Scientist, c/o Charles D. Faulker and E. B. Van Keuren & Charles F. Davis, archts., American Life Bldg., church.

Md., Baltimore—TEMPLE and SCHOOL—Hebrew Congregation of Baltimore, Park Heights and Charlesworth Aves., 1 and 2 story bsmnt., 140x160 ft., brick, rein.-con. steel temple and school. Bids 5/3, rejected. Hall, Border & Donaldson, 2111 N. Charles St., archts. CD 4/29.

Tex., Plainview — Forest Baptist Church, Plainview, 4 story, 38,300 sq. ft., brick, steel, cut stone educational bldg., concrete frame, sand fdn., $350,000. Emmett C. & Jas. F. Rittenberry, 1000 Fisk Bldg., Amarillo, archts.

August 2

Ia., Des Moines—HOSPITAL—Lutheran Hospital, 712 Parnell St., brick, concrete, steel hospital addn., Approx. $600,000. Weibendorff & Harrison, 506 Shops Bldg., archts. CD 7/7/47.

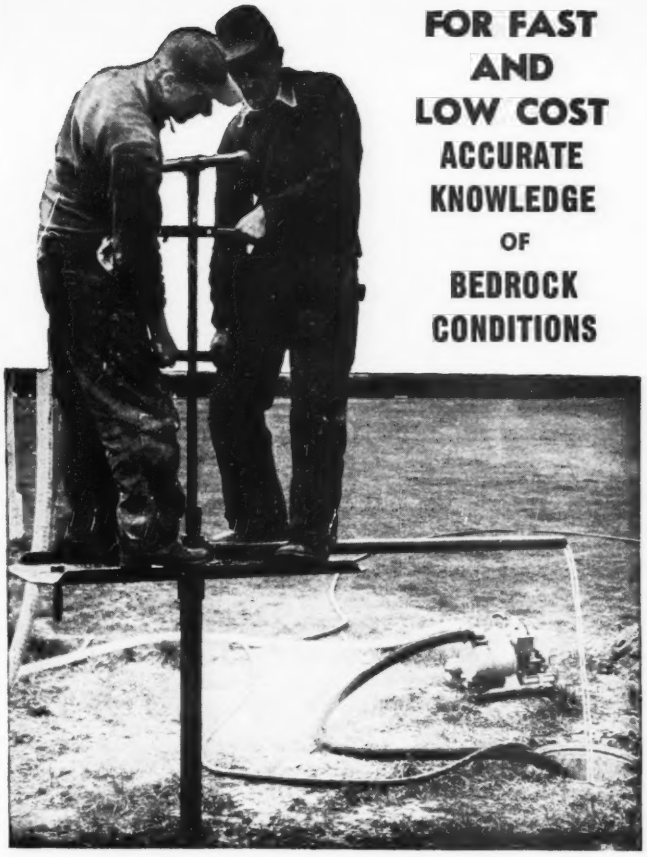
August 15

Tenn., Memphis—BUILDING—Young Women's Christian Assn., c/o George Awsumb, archt., 1792 Forrest Ave., Y. W. C. A. Bldg., $350,000. CD 2/16/48.

August 24

Ia., Des Moines—Iowa Methodist Hospital, 1200 Pleasant St., hospital addn. $300,000, Extended date Brooks-Borg, Hubbell Bldg., Des Moines, archts. CD 4/14.

(Continued on page 94)



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"C" TOURNAPULL ON 5000'

H. E. Skinner

reports that electric-control "C" "moves 15 more loads per day than Super C's"

On 600,000-yard clay fill for Little Elm Dam near Lewisville, Texas, Contractor Dean Skinner, of Austin, is licking bad weather and tough materials with a fleet of 6 Tournapulls. Material is the toughest kind of dobe-like clay . . . almost as hard as brick when dry . . . extremely sticky and hard to handle when wet. Heavy rains have been frequent. Yet, weather delays only slow down production temporarily. Skinner has found that his high-speed, rubber-tired Tournapull fleet can easily handle 17 days of scheduled work in 10 days of operation. Here's the kind of yardage performance that makes this production possible:

"C" averages 8 to 9 trips per hour on 2500' 1-way haul

Haul from borrow pit to fill averages 2500', including 1000' of rough going from pit to haul road, and 500' of 5% adverse grade onto fill. Skinner's new 150 h.p., electric-control C Tournapull, top-production rig of his fleet, completes a round trip every 5.8 minutes . . . steadily delivers 8 to 9 loads an hour throughout the 10-hour day.

Faster on wet fill and grades

"This new 'C' hauls 15 more loads a day than the Super C's", reports H. E. Skinner, superintendent . . . "beats our Super C's on grades and turns . . . certainly pulls through tougher material. It's better than any other 'pull' I ever saw or used." Here are a few reasons why:

Power-proportioning Tournamatic differential . . . *plus* traction and flotation on big 21.00 x 25 low-pressure tires, keep this modern 13.5 heaped-yard C Tournapull lugging through wet fills and up slick grades where other rigs stall. Positive power steer, finger-tip electric controls, and 20 m.p.h. speeds, all add up to more yards per day . . . and a *new* lowest net cost per yard. Write or see your LeTourneau Distributor for all the facts. Check TODAY.

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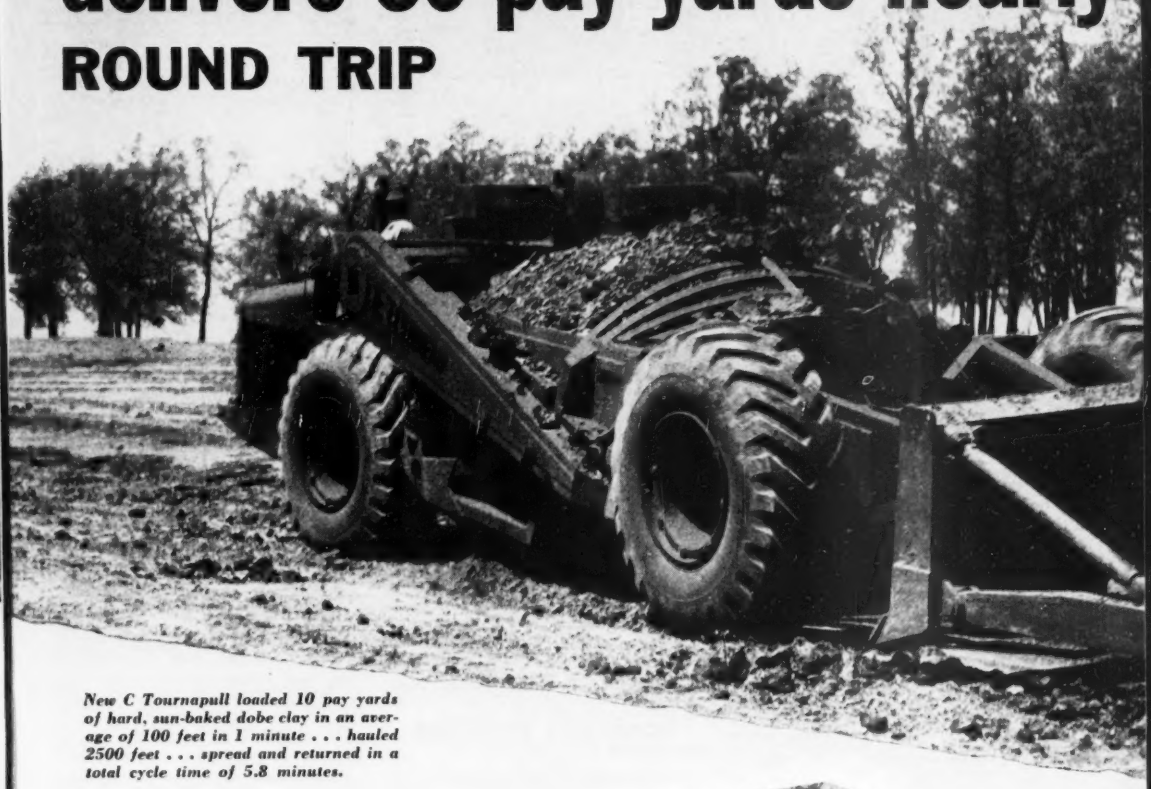

New C Tournapull loaded 10 pay yards of hard, sun-baked dobe clay in an average of 100 feet in 1 minute . . . hauled 2500 feet . . . spread and returned in a total cycle time of 5.8 minutes.

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LETOURNEAU LET EQUIPMENT

(Continued from page 91)

Bids Asked

●**Ill., Chicago**—APARTMENT—H. A. Zisook & Son, 100 W. Monroe St., 5 story, brick, rein.-con. apartment, Approx. $1,000,000. Frank A. McNally & Assoc., 105 W. Madison St., archts.

Wis., Milwaukee—CHURCH, etc.—St. Gerard's Roman Catholic Congregation, 3026 S. 17 St., Zone 7, 1 story, 34x67 ft. steel church and 2 story basmt., 53x12 ft., brick, tile, school addns.; concrete fdns. and floors. $275,000. F. S. Gurda, 733 W. Mitchell St., Zone 4, archt.

SOON LETS CONTRACT

Ala., Cullman—HOTEL—Cullman Development Co., c/o Van Keuren, Davis & Co., archts., American Life Bldg., Birmingham, soon lets contract hotel. CD 6/29.

Ia., Cherokee — HOSPITAL — Sioux Valley Hospital, Cherokee, soon lets contract hospital. $330,000. Wm. Beuttler, 508 Insurance Exchange Bldg., Sioux City, archt. CD 2/10.

Md., Baltimore—OFFICE—Baltimore Federal Savings & Loan Assn., 16 E. Fayette St., soon lets contract 4 story, 78x110 ft. brick, limestone steel, concrete office. St. Paul and Fayette Sts. Hall, Border & Donaldson, 2211 N. Charles St., archts. CD 6/21.

Tex., Fort Worth—DIAL TELEPHONE—Southwestern Bell Telephone Co., 308 S. Akard St., Dallas, soon lets contract 2 story, basmt., brick, hollow tile, cut stone walls, dial telephone bldg., concrete slab fdn. $250,000. ..

Wash., Pasco—HOSPITAL—Our Lady of Lourdes Hospital, Pasco, soon lets contract hospital addn. $250,000. Bids 6/21, rejected. J. W. Maloney, Larson Bldg., Yakima, archts. CD 6/29, under LB.

Alta., Edmonton — CHURCH — Blakey & Blackley, archts., 10042 109 St., soon lets contract church, for Parish of Saint Patrick, Edmonton.

Ont., Ottawa — CHURCH — A. Martineau, archt., 200 Bay St., soon lets contract rein.-con. church, Bayswater Ave. and Yonge St., for St. Mary's Roman Catholic Parish, Rev. Canon G. O. Toole, P.P. Approx. $300,000. CD 1/25.

LOW BIDDERS

La., Shreveport—CHURCH—First Methodist church, c/o low bidder, church addns., from Southern Builders, Inc., P. O. Box 842. **$335,-009.** CD 10/10/45.

Tex., Georgetown — CHAPEL, etc. — Southwestern University, Georgetown, contract awarded, Craddock Chapel or dormitory. CA Approx. **$250,000.** CD 5/26, under CA.

CONTRACTS AWARDED

Conn., Danbury—HOUSING—Keaschum Co., Wm. J. Shanchnessy, pres., Huntington Rd., Bridgeport, fifty 1 story, bench-gardening apartments, Kohanza St. Owner builds. **$300,000.** CD 6/30.

Fla., Tarpon Springs—HOMES—J. H. Prichard, c/o contractor, 100 homes, to Joe M. Castellini, 1308 17 Ave., Tampa. Approx. **$500,000.**

Ill., Chicago—HOUSING—Triplex Bldg. Co., 2165 N. Western Ave., Zone 47, three 3 story, brick, steel apartments, 2701 15 W. Summerdale Ave., to Kay Constr. Co., 452 W. Chicago St. **$285,000.** Awarded 6/28. Max Alper, 8 S. Dearborn St., Zone 3, archt.

●**Ill., Niles**—HOUSING—Moderate Cost Home Constr. Co., 5847 W. Touhy St., Chicago, Zone 30, 185 houses, Caldwell Rd. and Oakton St., to Robin Constr. Co., 1009 N. Wells St., Chicago, Zone 10. **$1,100,000.** Awarded 6/27. A. J. Del Bianco, 833 W. Irving Park Blvd., Chicago Zone 41, archt.

La., Alexandria — OFFICE — Southern Bell Telephone Co., Hurt Bldg., Atlanta, Ga., office bldg. addn., to Barge-Thompson Co., 106 Elks St., N. E., Atlanta, Ga., Approx. **$250,000.** CD 6/8.

La., Lake Charles—HOUSING—Coastal Development Co., c/o contractor, 60 houses, to Southern Constr. Co., Lake Charles. **$450,000.**

●**La., New Orleans** — APARTMENT — Wohl Apartments, c/o contractor, apartment development, to Gervais Favrot & Co., Balter Bldg., Approx. **$1,000,000.**

●**Md., Baltimore**—APARTMENTS—Loch Raven Village Apartments, Loch Raven Blvd., 14 brick, concrete apartments, to Loch Raven Constr. Co., c/o owner, **$1,565,400.**

●**Miss., Jackson** — SHOPPING CENTER — Owner, c/o Reid-McGee & Co., 516 E. Capitol St., shopping center, to Shelby Constr. Co., Jackson. Approx. **$1,500,000.** CD 6/16.

●**N. Y., New York**—APARTMENT—Netherland Gardens, Inc., 215 Montague St., Brooklyn, Zone 2, 3 six story apartments for 475 families at Netherland Ave. and W. 256 St. Owner builds. Approx. **$3,300,000.** Seelig & Finkelstein, 153 Pierrepont St., Brooklyn, Zone 2, archts.

N. Y., Williston Park — PAROCHIAL SCHOOL—St. Aiden's Church, Williston Park, parochial school, to Thomas J. Hughes Constr. Co., Inc., Grand Central Terminal Bldg., New York, Zone 17. Approx. **$400,000.** A. F. Meissner, 90-50 Parsons Blvd., Jamalca, archt.

N. C., Chapel Hill—APARTMENT—Country Club Development Co., c/o contractor, apartment development to William Muirhead Constr. Co., P. O. Box 2012, Durham. Approx. **$300,000.**

N. C., Durham — RESIDENCES — Alastair Housing Corp., c/o contractor, residential development, to William Muirhead Constr. Co., P. O. Box 2012, Durham. Approx. **$250,000.**

N. C., Fayetteville—HOMES—Elliott Homes, Inc., c/o H. J. Ziegler, Jr., Fayetteville, 118 homes. Owner builds. Approx. **$600,000.**

N. C., High Point—HOSPITAL—High Point Memorial Hospital, Inc., c/o contractor, hospital, to J. A. Jones Constr. Co., 209 W. 4 St., Charlotte, **$569,800.** Bids 6/10. CD 6/15, under LB.

N. C., Lumberton—TELEPHONE—Southern Bell Telephone & Telegraph Co., E. C. Houston, ch. engr., Hurt Bldg., Atlanta, Ga., telephone bldg., to Crain & Denbo, Inc., Durham. Bids 6/7. CD 5/25.

N. C., Siler City—APARTMENT—Thomas M. Brooks, 3604 Noble Ave., Richmond, Va., 50 apartment units. Owner builds. Approx. **$250,00.**

O., Conneaut — HOSPITAL — Bd. Trustees, Brown Memorial Hospital, Conneaut, 2 story, 58 bed hospital, to Alger-Rau, Inc., 12434 Cedar Ave., Cleveland. Approx. **$500,000.** Bids 6/6. CD 5/17.

O., Parma — BUNGALOWS — Alex Fador Realty Co., 3324 Lorain Ave., Cleveland, 28 brick, frame bungalows, North Ave., Tuxedo, Marmore Brookview Blvd., separate contracts, **$364,000.**

Tenn., Chattanooga — HOMES—Washington Apartments, Inc., c/o contractor, 96 homes, to Vaughan Constr. Co., 304 Jones Bldg., Approx. **$400,000.**

Tex., Alice—HOUSING—Right Way Pipe & Supply Co., Alice, 26 housing units, to B. & R. Constr. Co., Milam St., Approx. **$250,000.**

Tex., San Antonio — HOUSING — Delevan Realty Co., c/o G. W. Delevan, Sr., 3302 W. Woodlawn, 2, 1 & 2 story, 120 unit development, incl. 100 dwellings. Owner builds. Approx. **$600,000.** CD 5/26.

Tex., San Antonio — HOUSING — Thurman Barrett & Assoc., 6109 S. Flores St., 100 dwellings, Rayburn Dr. Owner builds. **$550,000.** CD 6/30.

Wis., Milwaukee—RESIDENCES—Brody & Sondel, 7827 W. National Ave., West Allis, Zone 14, fifty 1 story 24x26 ft., frame residences, block fdn. Owner builds.

Que., Granby—CHURCH and PRESBYTERY —Parish of St. Joseph, Rev. J. Potovin, cure, Granby, 64x144 ft. steel, concrete, stone church, wood, brick presbytery, to Les Construction Bernier & Gagne Ltd., 480 Blvd. Boivin, Approx. **$250,000.** Bids 6/22. CD 6/8.

Que., Montreal—CHURCH—Roman Catholic Parish of St. Phillippe the Apostle, Belanger St., rein.-con. church, to Bolleau Ltd., 705 Beaumont Ave., **$400,000.** Bids 6/27. A. Dutrisac, 1069 Beatty Ave., Verdun, archt. Leblanc & Montpetit, 512 E. Rachel St., engr. CD 6/15.

INDUSTRIAL BUILDINGS

BIDS ASKED

July 28

Ont., Cornwall—WAREHOUSE—M. M. Dillon & Co., engrs., Bank of Toronto Chambers, London, brick, steel warehouse incl. 65x175 ft. and 32x80 ft. wings, for Brewers Warehouse Co. Ltd., 19 Richmond St. W., Toronto. Approx. **$125,000.** CD 5/26.

August 1

Ill., Chicago — WAREHOUSE — Chicago Burlington & Quincy R. R. Co., H. R. Clarke, ch. engr., 80 E. Jackson St., Zone 6, 2 story, 50x1000 ft. warehouse, **$500,000.**

Okla., Oklahoma City—WAREHOUSE, etc. —R. A. Young, pres., T. G. & Y. Stores Co., 106 N. 8 St., 70,400 sq. ft. warehouse and office. **$350,000.** Coston & Frankfurt, Apco Tower, archts. CD 6/30.

August 15

Ind., Anderson — BAKERY — Omar, Inc., 1910 Harney St., Omaha, Neb., branch warehouse, **$85,000.** Luria Eng. Co., 500 5 Ave., New York, N. Y., engrs. and archts. Rejected engr. CD 4/28.

Ind., Green Castle—WAREHOUSE—Omar, Inc., 1910 Harney St., Omaha, Neb., warehouse, **$85,000.** Bids June 6 rejected. Luria Eng. Co., 500 5 Ave., New York, N. Y. archts. and engr. CD 4/28.

Ind., Indianapolis — WAREHOUSE — Omar, Inc., 1910 Harney St., Omaha, Neb., warehouse, **$160,000.** Luria Eng. Co., 500 5 Ave., New York, N. Y., engr. and archt. CD 6/17.

Ind., Marion—WAREHOUSE—Omar, Inc., 1910 Harney St., Omaha, Neb., warehouse, **$75,000.** Luria Eng. Co., 500 5 Ave., New York, N. Y., archt. and engr.

BIDS ASKED

Conn., New London—PLANT—New London Mills, Inc., 32 Pequot Ave., 1 story, 100x275 ft. brick, steel No. A plant, Pequot Ave. **$450,-000.** Fletcher Thompson, Inc., 211 State St., archt.

N. J., Riverside—GARAGE—Public Service Co., 80 Park Pl., Newark, garage. Approx. **$65,000.**

Tex., Tyler—AUTO PARKING—R. W. Fair, 225½ College St., Tyler, 2½ story (ultimately 5 story) 120x140 ft. rein.-con. auto parking. Approx. **$100,000.** S. W. Ray, Jacksonville, archt.

SOON LETS CONTRACT

Ala., Huntsville—MILL—Hedstrom Union Co., c/o G. Adolph Johnson, archt., 390 Main St., Worcester, Mass., soon lets contract mill addn. CD 6/27.

Ala., Sheffield—PLANT—Electro Metallurgical Co., Niagara Falls, N. Y., soon lets contract manufacturing plant addn.

Fla., Marianna — SALES and SERVICE — C. C. Harrison, c/o James A. Stripling & Assoc., archts., Child Bldg., Tallahassee, soon lets contract auto sales and service bldg. addn., alterations.

Fla., Miami—DAIRY PLANT—Mc Arthur Jersey Dairy Farm, c/o Robert Fitch Smith, archt., 201 Shoreland Bldg., soon lets contract dairy plant. Approx. $75,000. CD 6/24.

Wash., Vancouver — MILL — Aluminum Co. of America, Gulf Bldg., Pittsburgh, Pa., soon lets contract wire, rod and cable mill. Approx. **$68,000.**

Que., Pointe St. Charles (Postal Area Montreal — BUILDINGS — B. Wheelwright, ch. engr., Canadian National Ry., 360 McGill St., Montreal, soon lets contract bldgs. at shops. $100,000.

LOW BIDDERS

La., Lake Charles—WAREHOUSE—Davidson Sash & Door Co., Lake Charles, warehouse, from Emmett Young, Inc., P. O. Box 765, Lake Charles. **$73,727.**

Tenn., Memphis—BUS TERMINAL—Dixie Greyhound Bus Lines, c/o low bidder, June 22, bus terminal, from Tri-State Constr. Co., Three Sisters Bldg. Approx **$500,000.** CD 5/24.

Tex., Odessa—WAREHOUSE—G-B Realty Co., 1600 Young St., Dallas, June 24, warehouse, from Fulcher-Burcher Constr. Co., 1010 W. 3 St. **$73,000.** CD 6/21.

CONTRACTS AWARDED

Ala., Birmingham—LAUNDRY—Domestic Laundry Co., c/o P. S. McWhinney, archt., Title Guarantee Bldg., laundry addns., alterations to Day & Richardson, 429 S. 24 St., **$99,000.** Bids 6/21. CD 6/22.

Conn., Broad Brook — FACTORY — Broad Brook Co., Main St., factory, brick mill addn., spinning bldg., off Main St., to Bartlett Brainerd Co., 103 Woodbine St., Hartford, Approx. **$68,000.**

Conn., Portland—OIL TERMINAL—Valley Oil Co., Brownstone Ave., 1 story, 80x150 ft. oil terminal, office, garage, warehouse, Brownstone Ave., to Standard Builders, 55 Airport Rd., Hartford, Approx. **$70,000.** Bids 6/7. Guy Francis Lamb, 252 Main St., Middletown, archt. CD 6/7.

Conn., Shelton — FACTORY, etc. — Sidney Blumenthal & Co., Canal St., 1 story, 50x340 ft., brick, rein.-con., factory addns., Canal St. Owner builds. Approx. **$75,000.** Fletcher Thompson, Inc., 211 State St., Bridgeport, archt.

Fla., Miami—WAREHOUSE—Ro-Ed Corp., c/o Jules P. Channing & Assoc., engrs., 1575 Washington Ave., Miami Beach, warehouse. Owner builds. Approx. **$100,000.**

Fla., Tampa—GRAIN ELEVATOR—Grain Processing Co., c/o Harold Koening, engr., 308 Stovall Professional Bldg., grain elevator. Owner builds. **$120,000.**

Ill., Chicago — WAREHOUSE — Anheuser-Busch, Inc., 2367 Logan Blvd., St. Louis, Mo., 1 and 2 story, brick, steel warehouse addns., alterations, to Frank Stowell Co., 111 W. Monroe St. Approx. **$200,000.** Bids 6/8. Robert Layer, 189 W. Madison St., archt. CD 6/3.

●**Kan., Coffeyville**—PLANT—Cooperative Refinery Assn., P. O. Box 70, Coffeyville, dewaxing plant, to Process Engineers, Inc., 5635 Daniels St., Dallas, Tex. **$2,200,000.** Est. $1,750,000. Louis C. Brown, ch. engr. CD 1/2/48.

●**Kan., Kansas City**—PLANT—Colgate-Palmolive-Peet Co., 105 Hudson St., Jersey City, N. J., plant addn., to S. Part Constr. Co., 1340 Admiral Blvd., Kansas City, Mo., Approx. **$1,000,000.** Bids 6/8. CD 6/7.

Kan., Wichita—GRAIN ELEVATOR—Kansas Milling Co., 715 E. 13 St., rein.-con. grain elevator, to Chalmers & Borton, Hutchinson. **$200,000.**

Md., Baltimore—PARKING GARAGE—Central Parking Co., 216 Guilford Ave., 117x186 ft. and 10x22 ft., rein.-con. steel parking garage, 220 Guilford Ave. at Saratoga St., separate contracts. **$145,000.** Gerson Bonnett, 605 Park Ave., archt.

Minn., Sleepy Eye—WAREHOUSE, etc.—Brown Co. Rural Electric Assn., H. A. Rossuth, mgr., Sleepy Eye, general contract 1 story, 102x120 ft. warehouse and office, to J. Heyman, New Ulm. Approx. **$100,000.** Bids 5/5. CD 4/29.

Miss., Canton—PLANT—Mississippi Federated Co-operatives, Fertilizer Co. plant addn., to John J. Harter Co., Techwood Rd. N. W., Atlanta, Ga. Approx. **$225,000.**

N. C., Hendersonville — PLANT — Kalmia Dairy Plant, Hendersonville, plant, to Merchant Constr. Co., Asheville, **$125,000.** Bids 6/30. CD 6/30.

O., Columbus—SHOP—Rodenfels Chevrolet Co., 553 W. Broad St., 20,000 sq. ft. body and paint shop at 32 S. Mill St., to Leo F. Ruisinger, Inc., 851 Frebis Ave., Approx. **$95,000.**

Okla., Miami — WAREHOUSE — Goodrich Rubber Co., Miami, $60,000 sq. ft. brick, concrete warehouse, to Jones Bros. Constr. Co., 1169 Byers St., Joplin, Mo., **$700,000.** Awarded 7/7. CD 5/6.

S. C., Hemingway—WAREHOUSE—Paul V. Hardy, Hemingway, 170,000 sq. ft. tobacco warehouse. Owner builds. **$100,000.**

Tenn., Lafayette—WAREHOUSE, etc.—Tri-County Electric Membership Corp., Lafayette, warehouse and office, to George E. Reese, 5114 Charlotte Ave., Nashville, **$98,141.** Bids 6/28. CD 6/24.

Tex., Dallas—WAREHOUSE—Williams & Wagner, 8515 Preston Rd., warehouse, own forces. **$110,000.** CD 6/30.

Tex., Falfurrias—PLANT—La Gloria Corp., Driscoll Bldg., Corpus Christi, gasoline recovery plant. Owner builds. **$650,000.** CD 6/30.

Tex., Fort Worth—POWER PLANT—Community Public Service Co., Electric Bldg., electric power plant exten., own forces. **$200,000.** CD 12/10.

Tex., Houston—WAREHOUSE—Hirsch Electric Co., 5543 Arbor Pl., warehouse, to H. K. Ferguson, M & M Bldg., **$78,000.**

Tex., Houston—PLANT—Hughes Tool Co., 308 Hughes St., plant improvs., extens. Owner builds. **$90,000.** Wilson P. Martin, c/o owner, engr. CD 2/6/47.

●**Tex., Houston**—GASOLINE PLANT—Shell Oil Co., Shell Bldg., gasoline plant, at Provident City, 75 mi. south of here, to Fluor Corp., Ltd., M. Epperson Bldg., **$1,350,000.** CD 3/2/45.

Va., Roanoke—BUILDING—Norfolk & Western Ry., A. B. Stone, ch. engr., General Office Bldg., 53x64 ft. Motive Power Bldg. annex, on Shenandoah Ave. near Randolph Street Bridge, to J. M. Turner, 137 Campbell Ave. Approx. **$300,000.**

Wash., Seattle—WAREHOUSE—A. M. Castle Co., 3652 E. Marginal Way, warehouse addn., to A. F. Mowat Constr. Co., 2833 Eastlake Ave., Seattle. Approx. **$90,000.** Stevenson & Rubens, Olympic National Bldg., engrs.

Wis., Green Bay—WAREHOUSE, etc.—Green Bay Fertilizer Co., Inc., Green Bay, 1 story, 81x101 ft., steel, concrete block warehouse, 20x101 ft. concrete loading platform, to J. C. Basten, 1329 Main St. Foeller, Schober, Berners, Safford & Jahn, 310 Pine St., archts.

Wis., Milwaukee—FACTORY—Bruce Publishing Co., 402 N. Broadway, Zone 2, remodel bldg. for factory, to Gebhard-Berghammer Co., 5420 W. State St., Approx. **$125,000.** Brust & Brust, 135 W. Wells St., Zone 3, archts.

Wis., Milwaukee—GARAGE—W. Jagger Motor Co., 1329 W. National Ave., Zone 4, 1 story L shaped, 65x126 ft., and 20x20 ft., steel, brick, block garage addn., alterations, to Voss-Hrdlicka Co., 1235 S. 41 St., Zone 4. Approx. **$68,000.** M. F. Pfaller, 8525 Ravenswood Circle, Wauwatosa, Zone 13, archt.

Que., Montreal—POWER HOUSE—Canadian Pacific Ry. Co., J. E. Armstrong, ch. engr., Windsor Station, power house connection, to Anglin Norcross Quebec Ltd., 892 W. Sherbrooke St., Approx. **$750,000.**

UNCLASSIFIED

BIDS ASKED

July 26

Minn., Rochester—GENERATING UNITS—State, Dpt. Admin., P. T. Peterson, dir. Purchases, 19 State Capitol, St. Paul, furnish and supervise installation, 3 turbine generating units, one 800 sq. ft. surface condenser State Hospital, $125,000. Plans deposit $10. Ellerbe & Co., E. 505 First National Bank Bldg., St. Paul, engrs.

July 27

B. C., Vancouver—GYMNASIUM—Minister P. Wks., Province of British Columbia, Parliament Bldg., Victoria, rein.-con. steel memorial gymnasium. Approx. $500,000. Sharp & Thompson, 626 W. Pender St., archt.

July 28

California—TRAFFIC SIGNAL SYSTEMS, etc.—State Dv. Hys., P. Wks. Bldg., Sacramento, traffic signal sys. and lighting Rt. 4, at San Fernando Blvd. at Burbank Blvd., Burbank, Los Angeles Co.; hy. lighting sys. on Cabrillo Freeway between Friars Rd. and A St., San Diego, San Diego Co. G. T. McCoy, state hy. engr.

●**Pennsylvania**—RAILROAD—U. S. Eng., 925 Federal Bldg., Pittsburgh, Zone 19, stone ballasting and grade crossings, relocation of Conemaugh Div., Pennsylvania R.R., Conemaugh Reservoir, Serial No. Eng. 36-058.49-154. CD 6/9/44, under Earthwork, Waterways.

July 29

Illinois—RURAL DISTRIBUTION LINES—Tri-County Electric Co-operative, Inc., C. Glenn Jones, pres., Mt. Vernon, 29.44 mi. 7.2 KV distr. lines, 9 mi. 34.5 KV transmission lines, Jefferson and Marion Counties, Proj. Ill. 41 H. & L. Jefferson. Bids June 23, rejected. LB **$168,023.** Drazen & Assoc., 8135 Forsyth Blvd., Clayton, St. Louis 24, Mo., engrs. CD 7/7, under LB.

July 30

Que., Montreal—BATH—Exec. comm. City Hall, public bath, library and health center, Rosemount Blvd., for municipality. H. A. Gibeau, city engr. CD 5/13.

Late in July or Early in August

●**Colo., Denver**—STADIUM—Manager Imprvs. & Parks, City and Denver Co., Denver, 260x460 ft. rein.-con. stadium, $2,000,000. Plans deposit $100. Roland Linder, 507 Insurance Bldg., Denver, archt. Lorimer & Rose, 254

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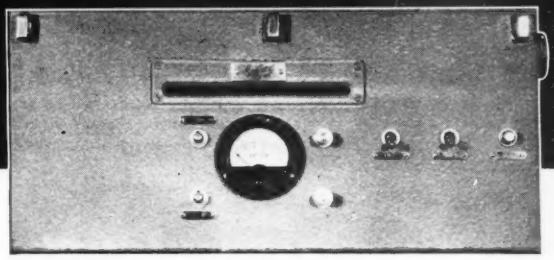

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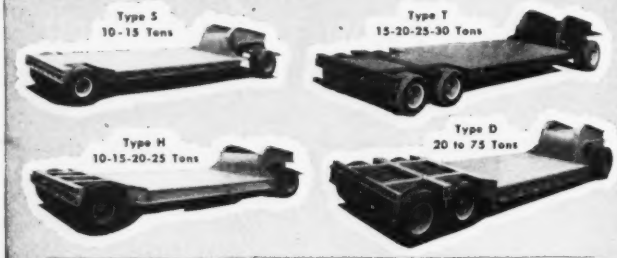

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W. 54 St., New York, N. Y., archts. and engrs. Roberts & Schaefer Co., 130 N. Wells St., Chicago, Ill., engrs. CD 6/26/48.

August 2

†Colorado — TUNNELS, etc. — Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, constructing Olympus and Pole Hill Tunnels and access roads, Estes Park-Foothills power aqueduct, Colorado Big Thompson Proj., from about 8 mi. west to 21 mi. west of Loveland, Larimer Co., Spec. 2722. L. N. McClellan, ch. engr.

†Oregon—TRANSFORMERS—U. S. Eng., 19 E. Poplar St., Walla Walla, Wash., design, mfg. testing, and del. seven 56,000 kva. single-phase, 3-winding power transformers and appurtenances for McNary Dam power plant, Serial No. Eng-45-164-49-110.

August 3

Conn., Bristol—SWIMMING POOL—City Bd. Parks Comrs., Council Chambers City Hall, swimming pool and pavilion De Witt Page Memorial Page Park. $115,000. Plans deposit $25. Harold A. Hayden, 175 Main St., Bristol, archt. CD 1/5/48.

August 4

†Wyoming—TRANSMISSION LINE—Bureau Reclamation, Dpt. Interior, Casper, relocation of Casper-Thermopolis 66 kilovolt transmission line, Transmission Div. Spec. R-7-66 (Region 7) Kendrick Proj.

August 5

●Colo., Denver—STADIUM—City and Denver Co., W. F. Henninger, city planning dir., City Hall, 300x400 ft., brick, concrete, steel municipal stockyards stadium, stock show arena, ice skating rink, $2,000,000. Roland L. Linder, 507 Insurance Bldg., Denver, Colo., and A. Gordon Lorimer, Roberts & Schaefer Co., 254 W. 54 St., New York, N. Y., archts.

About August 9

†Ohio — ELECTRIC LINES — U. S. Eng., Madison Ave. and 8 St. W., Huntington 18, W. Va., outside electric lines, Local Protection Proj., Portsmouth-New Boston.

August 9

†Arizona and Nevada — DISCONNECTING SWITCHES — Bureau Reclamation Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., sixty-two 15,000 volt disconnecting switches for Coolidge substation Pravis Dam Proj., Spec. 2721. L. N. McClellan, ch. engr.

About August 10

Kan., Stafford—SWIMMING POOL, etc.—City, City Hall, swimming pool and bath house, $75,000. Kenneth H. Larkin, 124 Wirthman Bldg., Kansas City, Mo., engr.

August 10

†Nebraska—SUBSTATION—Bureau Reclamation, Dpt. Interior, Casper, Wyo., Gering substation addns., transmission div., near northern city limits of Gering, just west of State Hy. 29, Missouri River Basin Proj., Spec. 2729. L. N. McClellan, Bldg. 1-A, Denver Federal Center, Denver, Colo., ch. engr.

August 25

†South Dakota—GENERATORS—U. S. Eng., 1709 Jackson St., Omaha 2, Neb., designing, mfg., del. f.o.b. railroad cars Lake Andes, installing in complete operating condition in the powerhouse and testing four 42, 165 kva. alternating current generators and appurtenances, Serial No. Eng-25-066-49-254.

Bids Asked

●Utah, Washington and Idaho—PIPELINE—The Salt Lake Pipeline Co., Utah Oil Bldg., Salt Lake City, 320 mi. 8 in. oil products pipeline between Salt Lake City, Utah and Boise, Idaho. $6,850,000; oil products pumping station at Salt Lake City, Utah, $275,000. CD 6/27.

LOW BIDDERS

Fla., Miami Beach—SWIMMING POOL—Coronado Hotel, c/o Roy F. France & Son, archts., 1620 West Ave., swimming pool, from Taylor Constr. Co., Route 1, Box 189, Miami, **$94,242.**

Ill., Chicago—SUBWAY—City of Chicago, Dpt. Purchases, Contracts & Supplies, City Hall, July 7, traction power distr. and control equip., Dearborn St. Subway, Contr. T-12, from Kil-Bar Electric Co., 2261 Clybourn St., **$863,618.** CD 6/15.

Mass., Stoneham—SWIMMING POOL, etc.—Commonwealth of Mass., Metropolitan Dist. Comrs., Park Div., 20 Somerset St., Boston, June 30, swimming pool, bath house, D-6, N. Border Rd., from Jamaica Constr. Co., 58 Arborway, Jamaica Plain, **$103,985,** Alt. 1, **$2,285.** CD 6/15.

Missouri—RURAL DISTRIBUTION LINES—Lewis County Rural Electric Co-operative, B. L. Anderson, pres., Monticello, June 24, labor only 171.6 mi. rural distr. lines, Adair, Clark, Knox, Lewis, Marion, Scotland, and Shelby Counties, from Sycamore Constr. Co., Vincennes, Ind., **$61,063.** CD 6/14.

N. Y., Pine Hill—CHAIR LIFT—Dpt. P. Wks., Albany, July 6, chair lift at Belleayre Mountain Ski Center, from John A. Roeblings Sons Co., 640 S. Broad St., Trenton, N. J., **$144,984.**

N. Y., Syracuse—GRANDSTAND BLEACHERS—Dpt. P. Wks., Albany, July 6, grandstand bleachers at Race Track, State Fair Grounds, from Williams Iron Wks. Inc., 430 E. 102 St., New York, Zone 29, **$104,122.**

Tex., Gonzales—STADIUM, etc.—Gonzales Independent School Dist., Gonzales, July 5, reinf. con. stadium-gymnasium, from Cunningham

Constr. Co., 1120 N. Mesquite St., San Antonio, **$109,873.** Herbert E. Kellner, Austin Hy., San Antonio, archt.

†W. Va., Morgantown—COAL BLENDING FACILITIES—U. S. Eng., 830 W. Broadway, Louisville, Ky., rejected bids June 17, design, fabrication, construction and install coal blending facilities at Morgantown Ordnance Works L. B. **$594,000.** CD 6/21, under LB.

CONTRACTS AWARDED

Calif., Booneville — EXHIBIT BLDG. — Mendocino Co., Courthouse, Ukiah, 70x200 ft., prefab. steel frame exhibit bldg. at County Fairgrounds, to Walter L. Tuttle, Box 513, Booneville, **$52,103.** Awarded 7/1. Donald I. Hardison, 522 23 St., Richmond, archt.

†Colorado — TRANSMISSION LINES — Bureau Reclamation, Dpt. Interior, Bldg 1 A, Denver Federal Center, Denver, 69 KV transmission circuit, incl. cable, from Estes Power Plant to West Portal of Adams tunnel and 115 KV transmission lines from Estes Power Plant to Marys Lake Power Plant, to Electrical Constructors, Inc. and C. M. Elliott, Chula Vista, Calif., **$986,000.** Bids 6/23, awarded 6/30, CD 6/30, under LB.

Conn., Bridgeport—DOCK, etc.—City, Peter Brewster, dir. P. Wks., dock and parking space, renewing wharf and docks, land imprvs., own forces, **$125,000.** CD 2/11.

Conn., New Haven—CONVEYOR SYSTEM—Connecticut Coke Co., foot Stiles St., 350 ft. conveyor sys., steel extens., appurtenances Stiles St. Owner builds, **$50,000.**

Fla., Miami — SWIMMING POOL — Mahi Shrine, 471 N. W. 3 St., swimming pool to Joseph G. Moretti, Inc., 2401 N. W. 7 St., Approx. **$50,000.**

Kansas—RURAL DISTRIBUTION LINES—Jewell-Mitchell Co-operative Electric Co., Belleville, 565.89 mi. rural distr. lines, Jewell Mitchell, Osborne, Smith, Rooks, Lincoln and Cloud Counties, to A. F. Reis, 702 National Bank Bldg., Topeka, **$135,188.** Bids 6/16, CD 5/26.

Ky., Newport — RECREATION BLDG. and SPORTS CENTER—Peter and Glenn Schmidt, 53 Oak Ridge Rd., Ft. Thomas, general contract, 1 story, bamnt., brick, steel recreation bldg., sports center, on 148 x 204 ft site, air-conditioned, to Beck-Wolfe Inc., 809 Walnut St., Cincinnati, O., **$300,000.** Awarded 7/1. Chester Disque, 1212 Hy. Ave., Covington, archt.

†N. Y., Oswego—BOATHOUSE—Pub. Wks. Office, Hudson Terminal Bldg., 50 Church St., New York, Zone 7, boathouse addn. at Naval Reserve Training Center, NOY 18461, Spec. 2268, to Arnold M. Diamond, Inc., 50 Court St., Brooklyn, Zone 2, **$188,283.** Bids 6/24. CD 6/16.

Tex., Angleton—FAIRGROUNDS — Brazoria Co., c/o Fairgrounds, Angleton, fairgrounds project, to R. F. Jordon Constr. Co., Angleton, **$104,700.** CD 6/30.

†Tex., Denison—RECREATIONAL PROJECT —U. S. Eng., c/o R. C. Payle, res. engr., Denison, Lake Texoma Recreational Proj., incl. road, parking areas, camping grounds, airway strips and beaches, drainage, water and sewer facilities, etc. Owner builds. **$450,000.** CD 6/13/45.

Tex., Fort Worth—ELECTRIC DISTRIBUTION LINES—Community Public Service Co., Electric Bldg., electric overhead distr. lines, force account, **$275,000.** CD 12/13.

Wash., Walla Walla—FISH HATCHERY—State Game Dpt., Smith Tower, Seattle, Zone 4, fish hatchery at Tucannon, near here, to Samuel R. King & Co., Pullman, **$82,640.** Bids 7/7. CD 6/20.

North West Territories, Buffalo River—RADIO STATION, etc.—America Metal Co. of Canada Ltd., Buffalo River, radio and telephone station, day labor, Approx. **$50,000.**

●Ont., Toronto—SUBWAY—Toronto Transportation Comm., 35 Yonge St., first section Yonge St. Rapid Transit Route to C. N. A. Pitts Co., Ltd., 67 Yonge St., Toronto, Arthur A. Johnson Corp., 2928 41 Ave., Long Island City, N. Y., U. S. A., Johnson, Drake & Piper, Inc., 1138 Baker Bldg., Minneapolis, Minn., U. S. A., and B. Perini & Sons, Inc., 73 Montwaite Ave., Framingham, Mass., U. S. A., **$10,000,000.** Bids 6/22. CD 4/14.

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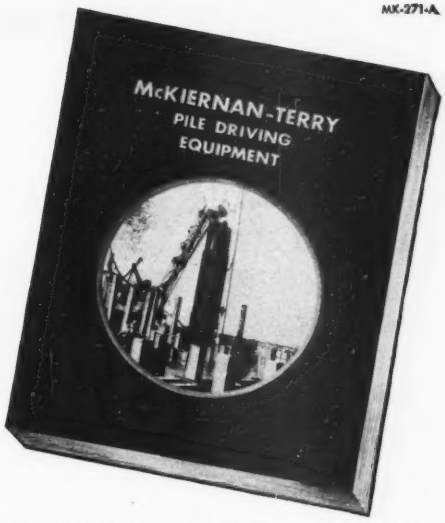

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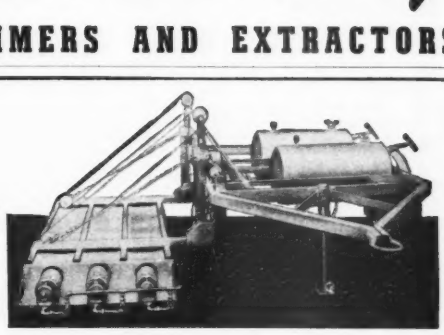

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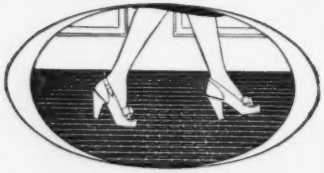

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CONSTRUCTION REPORTS—Second Section

WATER SUPPLY

BIDS ASKED

July 28

Tex., Greggtown—City, City Hall, WW sys., concrete fdn. for water tank, pumping units, $30,000. Homer A. Hunter, 6402 Bob-O-Link Dr., San Antonio, engr.

July 29

Tex., Lubbock—Modern Manors, Inc., Lubbock, c.l. water lines, $75,000. Parkhill, Smith & Cooper, 1006 14 St., engrs.

About August 1

Ga., Milledgeville—Baldwin Co., Milledgeville, WW sys. for Dist. 1. Approx. $28,000. J. R. Bracewell & Assoc., Buckhead Theater, Atlanta, engrs.

O., Cincinnati—Dpt. P. Welfare, 534 E. Rich St., Columbus, Zone 15, 4 in. water connection and meter vault at Longview State Hospital.

LOW BIDDERS

Calif., Healdsburg—City, City Hall, July 5, installing 19,250 lin. ft. watermains, from Valley Trenching Co., Box 669, Turlock. **$40,372.** CD 6/27.

Ill., Hillside and Berkeley — Hillside and Berkeley Water Comn., Village Hall, Berkeley, watermains, from Mike Till, 915 S. Hermitage Ave., Chicago, Zone 12. **$124,728**; reservoir, from G. D. Hardin, 2130 S. Michigan St., Chicago. **$109,678.** CD 6/16.

Mass., New Bedford—City of New Bedford Water Bd., Municipal Bldg., July 1, screen house alterations, pumping station, pumping equip., Quittacus Pumping Station, Lakeville Pond, from Woodard & Granger & Sons, 404 Nash Rd., **$282,594.** CD 6/8.

Mass., Newbury—Town of Newbury, Byfield Water Dist., Byfield, wate mains, WW material, from Gil Wyner Co., Inc., 12 Newland St., Malden, contractor furnish material, **$82,805.** Dist. furnish material, **$41,294.** Hayden, Harding & Buchanan, Park Sq. Bldg., Boston, engrs.

Ore., The Dalles—The Dalles Water Comn., City Hall, June 24, water filtration plant, from Midstate Constr. Co., The Dalles, **$166,592.** Est. $160,000. CD 6/14.

Tenn., Memphis—Memphis Suburban Utility Dist., Memphis, July 6, water dist. sys. from Modern Welding Co., Owensboro, Ky., **$470,048.** CD 6/27.

Tex., Tyler—City, City Hall, July 1, Lake Tyler raw water transmission pipeline, appurtenances, from Vandever & Christian, Tyler, **$104,280.** CD 6/14.

CONTRACTS AWARDED

Ark., Fort Smith—City, city clk., WW imprvs., incl. Sect. 1, control valves and meters; Sect. II filter imprvs., to Forsgren Brothers, 500 S. 5 St., **$15,881.** Bids 6/23. CD 6/15.

●**Calif., Los Angeles**—Dpt. Water & Power, 207 S. Broadway, Baldwin Hills Reservoir Proj., to Kemper Constr. Co., 3701 Overland Ave., **$1,074,827.** Bids 6/15. CD 6/20, under LB.

Colo., Denver—Bd. Water Comrs., City and County Bldg., 7 watermains, installing present facilities addns., force account, **$67,535.** D. D. Gross, City and County Bldg., ch. engr. CD 11/2/44.

Ga., Calhoun—City, water supply imprvs., Items 1 to 5 (inclusive) to James H. Small & Co., Riverside Viaduct, Jacksonville, Fla., **$218,264.** CD 6/17.

Ill., Enfield—City, City Hall, WW sys., to Bob Calaghan, Freeburg, **$112,594.** Awarded 7/10. CD 9/15/46.

Ill., Mount Vernon—Illinois Cities Water Co., Clifford Fore, dist. mgr., 1502 Broadway, WW imprvs., incl. round the end type mixing basin, stilling well, at end of basin, 150,000 gal. filter basin, chemical bldg., etc., to Midstates Constr. Co., Mount Vernon.

Ky., Cave City—City, City Hall, WW sys., Contr. 1, to Ruby Constr. Co., Madisonville, **$92,306.** Bids 7/6. CD 6/30.

Mo., Mexico—Missouri Power & Light Co., 106 W. High St. Jefferson City, WW imprvs., inc. filter equip., piping and valves for chemical filter units, Sect. 2, filter bldgs. filter boxes, mixing and flocculation basins, aerator, high service pump house, 500,000 gal. filtered water reservoir, to Martin K. Eby Constr. Co., 610 N. Main St., Wichita, Kan., Black & Veatch, 4706 Broadway, Kansas City, Mo., engrs.

N. C., Mooresville—Town, WW imprvs., incl. tank, to Chicago Bridge & Iron Co., 332 S. Michigan St., Chicago, Ill. **$64,200.**

Okla., Enid—City, Enid, 6 m. g. concrete water reservoir, to D. C. Bass & Son, Bass Bldg., **$229,884,** est. $240,000. CD 8/27/48.

N. D., Fargo—City, City Hall, watermains, to J. A. Shaw Constr. Co., Fargo, **$88,906.**

Tex., Bryan—City, City Hall, c.l. water distr. lines. Owner builds. **$80,000.** CD 4/24/47.

Tex., Greggton—Gregg Co. Water Control & Imprvt. Dist. 1, 200,000 gal. elevated steel water tower and 100 ft. tower, to Pittsburgh-Des Moines Steel Co., Praetorian Bldg., Dallas, **$28,291.** Est. $30,000. Bids 5/31.

SEWERS, WASTE DISPOSAL

BIDS ASKED

August 1

Ind., Sheridan—Town Bd., sewage treatment plant sewerage sys., $130,000. Plans deposit $25. John W. Moore & Son, 831 Indiana Pythian Bldg., Indianapolis, consult-engr. CD 10/30/45.

N. D. Wyndmere—City, City Hall, rejected bids May 25, sewers, L. B. **$79,457,** sewage treatment plant, L. B. **$56,587.** CD 6/9, under L.B.

Wis., Bagley—Village, sewage disposal plant, sewer mains, watermains, concrete reservoir and deep well. Plans deposit $10. H. J. Kuelling, Madison, engr.

LOW BIDDERS

Calif., Stockton—City, City Hall, July 5, sanitary sewers for 1000 lots in Stockton Acres, Res. 910, from F. R. Archibald, 718 Douglas Ave., Oakland, **$115,686.** CD 6/20.

Minn., Moorhead—City, P. A. Cook, clk., City Hall, June 27, sewage pump. station, waste treatment plant imprvs., from Phelps-Drake Co., 1415 S. E. 8 St., Minneapolis. **$144,700.** CD 6/2.

CONTRACTS AWARDED

●**N. J., Hackensack**—Bergen Co. Hackensack River Sanitary Sewer Dist., Auth., Bergen Co. Administrative Bldg., Overpeck Valley Joint Sewage Works, Contr. 9, trunk sewer, to Miel & Salvatore, 90 Millburn Ave., Maplewood, **$834,713.** Bids 5/6, awarded 7/5***. Contr. 5 electrical work at treatment plant, to Buscl Bros., Inc., 101 W. Palisade Ave., Englewood, **$133,508*****Contr. 8A, trunk sewer, to LaFera Contg. Co., 149 Verona Ave., Newark, **$619,381*****Contr. 8B, trunk sewer, to H. L. Harrison & Son, Inc., 1060 Broad St., Newark, **$493,661*****Contr. 15A, trunk sewer, to Socarin, Preston & Burrows, Inc., 50 Church St., New York N. Y., **$269,514*** Contr. 15B, trunk sewer, to Frank Stamato & Co., 40 Sidney St., Lodi, **$117,815.** Cpcity total, $2,768,995. Bids 7/5, awarded 7/7. CD 5/26, under LB.

N. D., Colman—City, City Hall, sewers and sewage plant, to Nodland Alberg Co., Alexandria, Minn., **$59,719.** Bids 6/21. Buell & Winter, 508 Insurance Exchange Bldg., Sioux City, Ia., engrs.

N. D., Fargo—City, City Hall, sewers, to J. A. Shaw Constr. Co., Fargo, **$83,604.** Bids 7/5.

O., Cleveland—City, City Hall, 2 storm sewers, 3 storm sewer outlets, 1 sanitary sewer, to Utilities Constr. Co., 643 Green Rd., South Euclid, **$58,708.** CD 4/13/43.

O., Euclid—City, 585 E. 222 St. storm and sanitary sewers E. 260 St. from Euclid Ave. to Lakeland Blvd., to National Constr. Co., 22500 Lakeland Blvd., **$139,000.** Est. $100,000. Harry Stolley, City Hall, city engr.

Tex., Bryan—City, City Hall, addnl. sanitary sewer lines, disposal plant. Owner builds. **$110,000.**

Wash., Olympia—City, City Hall, 2,600 ft. 24 and 36 in. sewers from 7 Ave. and Columbia St. to proposed pump. plant near State Ave. and Water St.; to Matt Malaspina Co., 1901 3 Ave. S., Seattle, **$53,922.** Bids 6/28. CD 6/18.

Wis., Cudahy—City, sewers in S. Packard Ave., to Tomaro, Carle & Tomasini, 5317 S. Lake Dr., **$90,323.** Bids 7/5. CD 6/14.

BRIDGES

BIDS ASKED

STATE HIGHWAY LETTINGS

July 26
North Carolina
July 28
New Jersey
August 2
Maryland
August 3
Montana
New York
August 9
Maryland
August 10
Louisiana
August 26
North Carolina

July 27

Ont., Woodbridge (Toronto)—Secy., c/o Toronto and York Roads Comn., 57 Adelaide St., Toronto, 2 span deck highway bridge over Humber River, concrete floor and abutments, Proctor, Redfern & Laughlin, 11 Jordan St., Toronto, engrs. CD 2/28.

August 3

Montana—State Hy. Dpt., Helena, steel concrete bridge Baker southeast Hy. paving underpass U. S. Hy. 10, western edge Billings.

2 timber bridges, Canyon Creek-Wilborn Rd.

timber bridge across irrigation canal Hy. 89 3 mi. east Fairfield.

approaches to Jefferson West Gallatin and Madison River bridges, Hy. 10.

(Continued on page 100)

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CONCRETE FRAMES AND FLOORS

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Photo shows construction of Veterans Administration Hospital, Wilkes-Barre, Pa. The design utilizes reinforced concrete frame and concrete joist floors with concrete masonry fillers. The structure is approximately 46 ft. x 420 ft. and is 11 stories high. Kelly & Gruzen and Isadore Rosenfield, architects, and Fred Severud, consulting engineer, all of New York City.

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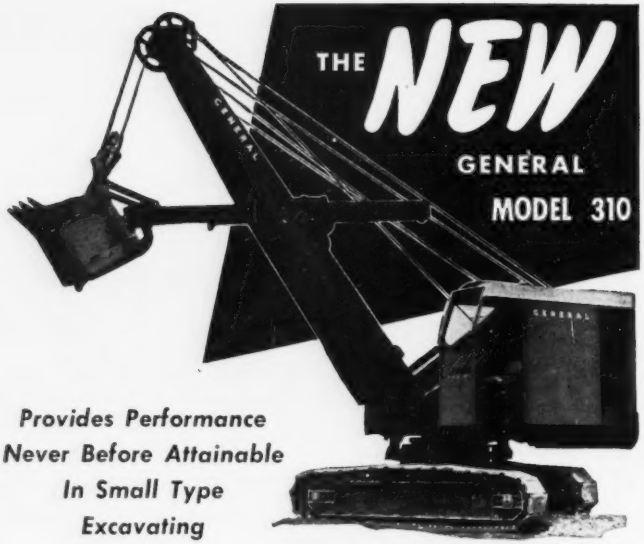

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(Continued from page 98)

New York—Bertram D. Tallamy, supt. Pub. Wks., Albany.

August 10

Louisiana—State Hy. Dpt., Baton Rouge.

Lincoln Parish—wid'n, Illinois Central overpass, c. conc. 0.253 mi. approaches Ruston Arcadia Hy., State Rt. 4, S. P. 1-07-11. Plans deposit $5 without cross sections, $8 with cross sections.

On or About August 10

†**Ohio**—U. S. Eng., Madison Ave. and 8 St. W., Huntington, 18, W. Va., ballast deck, steel, concrete underpass for relocation of Baltimore & Ohio R. R., Dillon Reservoir, Dillon Falls Underpass, Serial No. CIVENG -46-022-50-12.

LOW BIDDERS

California—State Div. Hys., Sacramento, July 6, rein.-con. slab bridge over Carnedero Creek about 1.8 mi. south of Gilroy, Santa Clara Co., from Dan Canuto, Rt. 1, Box 397, San Jose, **$88,677.** CD 6/13.

Delaware—State Hy. Dpt., Dover, received no bids July 6, concrete, steel deck structure 0.131 mi. Charles W. Cullen Bridge, Indian River Inlet, FAP F-113(3), Contr. 1030, Sussex Co. CD 6/15.

●**Maryland**—State Hy. Dpt., Baltimore, July 12, Pier 32 to 57 and alternate 1, Piers 32 to 40, Chesapeake Bay Bridge, Sandy Point and Stevensville, Anne Arundel and Queen Anne Counties, from Merritt-Chapman & Scott Corp., 17 Battery Pl., New York, N. Y., **$4,697,060** and **$3,653,923** respectively. CD 6/15.

Michigan—State Hy. Dpt., Lansing, June 23, bridge, Co. Rd. 687, crossing middle branch of Black River, 1.5 mi. north of Kibbie, S. P. CS B1 of 3-21, Allegan Co., from Carl Goodwn & Sons, Allegan, **$55,635****bridge carrying M 62 (relocation) over Dowagiac Creek 0.2 mi. east of Dowagiac, S. P. SS B 3 of 14-4-C1, Cass Co., from Getman Bros., South Haven, **$80 038****bridge carrying M 29 (relocation) over Black River at west limits Port Huron, S. P. U1 B1 of 77-20-11, C1, St. Clair Co., from Fry & Kain, Jarvick Constr. Co., 411 W. Geir St., Lansing, **$628,716.** CD 6/15.

Michigan—State Hy. Dpt., Lansing, May 13, grade separation, viaduct carrying U. S. 31 (relocation) over C. & O. tracks, U1 XI of 11-18-7-47, Berrien Co., from L. W. Lamb, Holland, **$599,899.** CD 5/5.

●**New Jersey**—State Hy. Dpt., Trenton, July 7, double-leaf bascule Sea Bright-Rumson Bridge on south branch of Shrewsbury River, FAP S-111(1), Monmouth Co., from Union Building & Constr. Co., 631 Main Ave., Passaic, **$1,472,124.** CD 6/9.

New York—Henry A. Cohen, dir. Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, July 13, c. conc. paving, built-up beam 6 spans 405 ft. built-up beam 3-spans 173 ft. pedestrian subway under railroad 0.3 mi. Dist 8, elimination of grade crossing of New York Central R. R. Co. with Ashford Ave. (Dobbs Ferry) Contr. No. PSC 4979, Westchester Co., from Horn Constr. Co., Inc., 1778 Broadway, New York, N. Y., **$853,860.** Est. $981,000. CD 6/23.

Pennsylvania—State Hy. Dpt., Harrisburg, July 8, repairing 7 bridges with pressure mortar, L.R., 326; 134; 282; 23031; 46030; 46067; Appl. 296, T.R. 332; 52; 100; 141; 282; 272; 896, over Neshaming, Big Elk, Brandywine Crum and Perkiomen Creeks and the tracks of the Reading Co., Bucks, Chester, Delaware and Montgomery Counties, from Joseph A. McCollum, Inc., 31 N. 4 St., Camden, N. J., **$61,875.** CD 6/15.

CONTRACTS AWARDED

Alabama—State Hy. Dpt., Birmingham, concrete deck and superstructure 0.559 mi. for First Ave. Viaduct in Birmingham, F.A.P. UG 1-280 (5), Jefferson Co., to Blount Bros. Constr. Co., Tuskegee, **$955,922.** Bids 5/27. CD 6/7, under LB.

†**Georgia**—U. S. Engr., P. O. Box 1169, Mobile, 7, Ala., bridge over Etowah River, Alabama-Coosa Watershed, Allatoona Dam, Cherokee Co., Proj. Eng-01-076-49-146, to Hardaway Constr. Co., 15 E. 11 St., Columbus, **$330,654.** Bids 6/30, awarded 7/7. CD 6/21.

Iowa—State Hy. Dpt., Ames, 22x230 ft. continuous I-beam bridge local road over Raccoon River, Greene-Carroll Co. line near northwest corner Sect. 18-84-32, S-1267(1), Green Co., to F. O. Montgomery Co., Humboldt, **$73,087.** Bids 6/21. CD 6/9.

●**New Jersey**—State Hy. Dpt., Trenton, double leaf bascule span and 8 fixed spans of superstructure of Manasquan River Bridge Rt. 35, Sec. 4O between Brielle and Point Pleasant Beach, FAP No. U-59(4), Monmouth and Ocean Counties, to American Bridge Co., 71 Broadway, New York, N. Y., **$1,623,212.** Bids 6/30, awarded 7/9. CD 7/5, under LB.

Tex., Dallas—Dallas Co., Court House, concrete timber vehicle bridges, Precinct 3, **$105,000**, Precinct 4, **$90,060** and Precinct 5, **$110,000**, force account. Grand total, $305,000. H. Klinger, co. engr. CD 6/2.

Tex., Orange—Southern Pacific Ry. Lines, H. J. MacKenzie, ch. engr., Union Station, Houston, railway trestle reconstruction, near here, force account. Approx. **$85,000.**

Ont., Ingersoll—Upper Thames River Conservation Auth. London, Johnson, secy., 100 ft. span rein.-con. bridge across improved channel of Thames River between Lots 8 and 9, Broken Front Concession, W. Oxford Twp., to Schwenger Constr. Co., Ingersoll. Approx. **$100,000.** G. G. Reid, 264 Avenue Rd., Toronto, engr.

STREETS AND ROADS

BIDS ASKED

STATE HIGHWAY LETTINGS

July 26
Colorado
Massachusetts
North Carolina
July 27
Louisiana
July 29
North Dakota
Wisconsin

August 3
California
Montana
New York
California
August 10
Louisiana

July 29

Foster and Stutsman Counties—grav. surf., incidental 5.248 mi. on county road from Kensal N. and then west to junction with State Hy. 9, Proj. S-361 (1) and S-384 (1).

LOW BIDDERS

California — State Div. Hys., Sacramento, July 6, place imported base material, road mix surf. 7.1 mi. near Keeler between Soda Plant and S mi. south, Inyo Co., from R. A. Irwin, Box 244, Colton, **$80,990*****surface shoulders, existing pavement plant mix surf. construct, outer lty. 4.3 mi. between Ignacio and Richardson Bay Bridge, Marion Co., from A. G. Raisch Co., 2048 Market St., San Francisco, **$217,989*****plant mix on crusher run surf. 2.7 mi. Del Monte Blvd., between east city limits of Monterey and Seaside Junction Monterey Co., from Granite Constr. Co., Box 900, Watsonville, **$242,423*****plant mix on cement stabilized crusher run surf. 0.8 mi. between the south city limits and S. Main St., Salinas, Monterey Co., from Ted. F. Baun, 324 Princeton Ave., Fresno, **$192,970.** CD 6/13.

Calif., Sacramento—City, City Hall, cancelled bids to have been opened July 1, imprv. streets in Fruitridge Oak Unit 1, approx. **$50,000.** CD 6/21.

Calif., San Mateo—City, City Hall, July 5, imprv. S. El Camino Real, from L. C. Smith, First and Railroad Sts. **$77,966.** CD 6/7.

Delaware—State Hy. Dpt., Dover, July 6, wid'n., resurf. from Cranston Heights to Basin Rd., Contr. 962, New Castle Co., and wid'n., resurf., 3.721 mi. Camden Camp Meeting Woods, through Dover to Silver Lake, Contr. 987, Kent Co., from Wilson Contg. Co., du Pont Blvd. and State Rd., Wilmington, **$199,857** and **$217,881** respectively; stabilized earth and surf. 4.376 mi. Milton to Overbrook, Contr. 1016, Sussex Co., from Walter Roach & Sons, Georgetown, **$67,462.** CD 6/15.

Idaho—State Hy. Dpt., Boise, June 24, grav. surf. 9.888 mi., reconditioning 8.786 mi. State Hy. 42, Latah Co., from F. H. De Atley, Lewiston, **$114,127.** Est. $121,040. CD 6/15.

Idaho — State Hy. Dpt., Boise, roadbed, drainage structures 2.59 mi. State Hy. 29 relocation Hy. on Palisades Proj., Bonneville Co., from Jack C. Olson, Logan, Utah, **$309,316,** est. $388,060***roadbed drainage structures, grav. surf. 3.943 mi. Copeland-Porthill Rd., Boundary Co., from Grant Constr. Co., Coeur d'Alene, **$98,459,** est. $93,473***reconditioning roadbed, b. conc. 16.88 mi. U. S. 191, Brigham Co., from Carl E. Nelson, Logan, Utah, **$256,099,** est. $248,293***reconditioning roadbed, b. conc. 7.508 mi. U. S. 95, Washington Co., from Morrison-Knudsen Co., 319 Broadway, Boise, **$65,914,** est. $70,447.

Kentucky—State Hy. Dpt., Frankfort, July 8, from Codell Constr. Co., Inc., Winchester, traffic bound limestone 2.045 mi. Darfork-Sassafras Rd., S 156 (1); SP (97-202) (60-238), Perry and Knott Counties, **$78,875;** traffic bound limestone 4.984 mi. West Irvine-Wisemantown Blackburn Rd., RS 33-163, Estill Co., **$60,260;** traffic bound limestone 7.656 mi. Maplesville-Old Salem Church Rd., London-McWhorter Rockcastle River Rd., and McWhorter-Congo Rd., RS 63-951, 63-511 and 63-931, Laurel Co., **$117,797;** traffic bound limestone 8.574 mi. Creelsboro-Forrest Cottage Rd., Part 1 and 2, TBS, RS 104-238, Russell Co., **$160,871;** traffic bound limestone 11.202 mi. Halls Gap Ottenheim-Crab Orchard Rd., RS 69-270, Lincoln Co., **$62,116*****from Cowan & Edwards, Madisonville, bit. surf. Class C-1 and A-2 seal, 25.453 mi. SP Group 57 (1949), Christian Co., **$59,534;** bit surf. Class F 9.761 mi. SP Group 62 (1949), Graves Co., **$57,687*****from Sager Constr. Co., 5507 Pershing St., St. Louis, Mo., bank or creek grav. 7.538 mi. Bandana-Woodville-Kevil Rd., S 63 (1); SP 4-201, Ballard and McCracken Counties, **$119,845.**

From Crow Ltd., Beaver Dam, traffic bound limestone 5.715 mi. Fordsville-Hawesville Rd., SP 145 (1); SP 92-384, Ohio Co., **$128,412***** from Hinkle Contg. Co., Paris, bit. surf. Class C-1 and A-2 seal, 9.141 mi. SP Group 56 (1949), Fleming and Rowan Counties, **$56,626*****from Middle West Roads Co., Noblesville, bit. surf. Class C-1 and A-2 seal 11.607 mi. SP Group 61 (1949), Grant and Owen Counties, **$67,948*****

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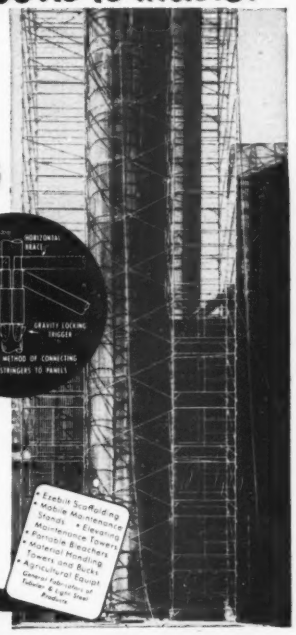

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620 FORD BUILDING, DETROIT 26, MICHIGAN

from **A. W. Walker & Sons, Mt. Sterling,** bit. surf. Class C-1, 19.65 mi. SP Group 63 (1949), Menifee, Powell and Wolfe Counties, **$62,920***** from Gorman Constr. Co., Flemingsburg, traffic bound limestone 7.539 mi. Bald Hill-Smith Rd. and Old Convict Rd., RS (35-450) (35-430), Fleming Co., **$90,803***** from Hart & Edwards, Lexington, traffic bound limestone 2.723 mi. Mt. Gilead-Miami Rd. RS 44-256, Green Co., **$57,367** ***from Nally & Gibson, Springfield, traffic bound limestone 6.148 mi. Pikeview Rd., RS 44-256, Green Co., **$53,240.**

From Breslin Constr. Co., 1801 S. Brook St., Louisville, bit. coated aggregate, Class F, 6.057 mi. Poplar Level Rd., RS 56-28, Jefferson Co., **$64,418***** from R. B. Tyler Co., 1446 Lovering St., Louisville, bit. coated aggregate Class F rock and bit. coated aggregate binder Class F rock asph. surf. 9.368 mi. Poplar Level Rd. and Fegenbush Lane Rd., RS (56-28 56-8), Jefferson Co., **$123,431***** from Regenhardt Constr. Co., Cape Girardeau, Mo., traffic bound limestone 4.244 mi. London-McWhorter-Rockcastle River Rd., RS 63-511, Laurel Co., **$65,040***** from Talbott-Myers Constr. Co., Winchester, local bank or creek gray, 3.565 mi. Hotsnot-Whitesburg Rd., RS 67-429, Letcher Co., **$146,-503***** from Nally, Ballard & Hamilton, Bardstown, traffic bound limestone 3.575 mi. Botland-Manton Rd., RS 90-445, Nelson Co., **$67,040***** from I. H. Hardin, Bedford, traffic bound gray, from I. H. Hardin, Bedford, traffic bound gray, from I. H. Hardin, Bedford, traffic bound gray, 5.53 mi. Owenton-Liberty Rd., RS 94-373, Owen Co., **$52,645***** from John Harmon, Bedford, local bank or creek gray, 6.209 mi. Mt. Pleasant Rd., from Ky 37 RS 112-138, Trimble Co., **$90,902.** CD 6/29.

Md., Baltimore—Mayor & City Council, City Hall, July 6, sheet asph. resurf. streets, Contr. 998, from P. Flanigan & Sons, Inc., 2405 Loch Raven Rd., **$149,996.** Contr. 997, from Baltimore Asphalt Block & Tile Co., 1320 N. Monroe St., **$120,478.** CD 6/29.

Massachusetts — Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, June 28, Hy. S. Main St., Orange, from Colonna Bros., Inc., 27 Hollis St., Framingham **$99,516.** CD 6/15.

Mass., Boston—City, P. Wks. Dpt., City Hall Annex, July 6, sheet asph. Talbot Ave., Dorchester, from Baker & Co. Inc., 3475 Washington St., Jamaica Plain, **$93,065.** CD 6/28, under Mass., Dorchester.

Mass., Medford—City, June 30, street and rein.-con. pipe culvert construction, from A. V. Taurasi Co., Inc., 139 Jacques St., Somerville, **$134,015.**

Michigan—State Hy. Dpt., Lansing, May 25, stab. aggregate surf, 12.591 mi. M-76 from Roscommon to St. Helens on new location FI-72-28 C14, Roscommon Co. and stabilized surf. course 5.825 mi. M-57 west of Carson City SS-39-41 C-5, Montcalm Co., from L. Dyer & Sons, McBrides, **$136,126** and **$169,108** respectively***c. conc. 1.367 mi. M-43 W. county line E. F-23-6 C-6, Eaton Co. and c. conc. 4.016 mi. M-66, F-34-15 C-4 and F-8-8 C-2, Ionia and Barry Counties, from Louis Garavaglia and Carl Goodwin & Sons, Allegan, **$410,978***b. conc. 0.611 mi. U. S. 16 at 2 locations, approx. 1 and 2.25 wi. west of Webberville, M-33-19 C-11, Ingham Co. and b. conc. 1.93 mi. U. S. 16 from West Co. line east at 3 locations, M-47-16 C-15, Livingston Co., from Detroit Asphalt Paving Co., 702 Transportation Bldg., Detroit, **$70,286.** CD 5/18.

Michigan—State Hy. Dpt., Lansing, June 21, c. conc. 1.063 mi. M-28 from 1,200 ft. south of Munising south city limits, north to Munising Ave., S.P. F-2-23 C-1, Alger Co., from Pierson Contg. Co., Saginaw, **$128,668.** CD 6/15.

Michigan—State Hy. Dpt., Lansing, June 23, c. conc. 0.661 mi. U. S. 131, approx 2.5 mi. southwest of Portage, S.P. F-39-5 C-4, and c. conc. 0.538 mi. 2.5 mi. southwest of Portage northerly to city of Kalamazoo, S.P. F-39-5 C-5, both Kalamazoo Co., from Carl Goodwin & Sons, Allegan, **$312,983***c. conc. 1.44 mi. Co. Rd. CS-38-13, C-2 and CS-38-54 C-3, Jackson Co., from P. Vander Veen & Sons, 2270 N.ward St. S.E., Grand Rapids, **$86,913** ***b. conc. 3.719 mi. U. S. 16 on Farmington cutoff, M-63-27 C-8 and M-63-29 C-6, Oakland Co., from Detroit Asphalt Paving Co., 702 Transportation Bldg., Detroit, **$79,918***c. conc. and s. base repair 6.125 mi. county Rd. from Marine City west, S.P. CS-77-73 C-1, St. Clair Co., from L. M. Cooper, 6331 Montrose St., Detroit, **$78,462.** CD 6/15.

Miss., Cary—Town, Town Hall, received no bids July 5, street imprvs. CD 6/24.

†Montana—Bureau P. Rds., General Services Admin., Missoula, July 7, oiling 19.5 mi. Clark Fork Hy. from Thompson Falls, west, Sanders Co., from Union Constr. Co., Missoula, **$159,345.** CD 6/24.

●New Jersey — State Hy. Dpt., Trenton, July 7, surf. 3.4 mi. from Inman Ave., Middlesex Co. to Centennial Ave., junction of Clark, Linden, Cranford and Winfield Twps., Union Co., from Union Building & Construction, 631 Main Ave., Passaic, **$1,241,114.** CD 6/17.

●New York—Henry A. Cohen, dir. Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, June 13, two course c.conc. paving 4.12 mi. misc. work 0.02 mi. Alpha I-beam 25 C to C span rein.-con. slab 30.79 ft. span Dist. 5, Jamestown-Stockton, Pt. 1, SH 1026 Pratt Corners-Sinclairville SH 1471, Contr. No. RC 49-75, Chautauqua Co., from John B. Schultz Constr. Co., Inc., 3016 Crestwood Ave., Buffalo, **$806,631** est. **$844,000** *** b.conc. opt. 2.34 mi. Dist. 7, Pierce-field-Tupper Lake Pt 3, S.H. 9013 Tupper Lake Village SH 5707, Contr. No. RC 649-72, Franklin Co., from Ador & Booth, Watertown, **$62,376** est. $72,000***c.conc. paving 1.85 mi.; b.conc. 0.43 mi. opt; gray. surf. 0.56 mi. Alpha I-b 4 spans two 49 ft. 34 ft., 32 ft. Alpha IB 4 spans, two 65.65 ft. 46.25 ft, 44.25 ft. I-beams 57 ft. span I-beam 50 ft. span Alpha Dist. 3, Contr. No. OT 49-5, Ontario Thruway, MT 4911, Mohawk Thruway, RC 49-76, Syracuse-Cicero, SH 547- SH 49-12, LeMoye Ave., Onondaga Co., from Arute Bros., New Britain, Conn., **$1,256,-596** est. $1,415,000*** b.conc. 0.53 mi. b.conc. pt. 2.79 mi. Dist. 6 Corning City, Denison Parkway exten. Big Flats-Gibson SH 742, Proj. U-225 (7) Proj. F-225 (7) Proj. F-343 (4), Contr. No. FAC 49-4, FARC 49-73, Steuben Co., from Beiro Eng. & Constr. Corp., McKinley Bldg., Buffalo, **$895,493,** est. $1,031,000***b.conc. 0.41 mi. misc work 0.22 mi. 3 span I-beam 80 ft. each 0.04 mi. Dist. 6, Owego-Candor Prt. 2, SH 5471 Contr. No. RC 49-70, Tioga Co., from H. E. Bunce, Waverly, **$204,317,** est. $239,000 c.conc. paving wide cellular span, concrete arch 53 ft. span rigid frame 87 ft. 0.58 mi. Dist. 8, Cross County Parkway to Hutchinson River Parkway (Wartburg Connection) Contr. No. CC 49-1, Westchester Co., from Rusciano & Son Corp., 728 E. 212 St., New York, **$1,597,000,** est. $1,650,-000. CD 6/23.

Pennsylvania—State Hy. Dpt., Harrisburg, July 8, c. conc. and crushed aggregated bases, with bit. surf. wid'n. 15.281 ft L.R. 66 (R-1); L.R. 523 (R-1), T.R. 28, 66.839 from point in south Bethlehem Boro south toward Oakland and from point south of Dayton Boro southerly, Armstrong Co., from The Ray F. Yount Co., Inc., Kittanning, **$121,785***wid'n. pavement with c. conc. and crushed aggregate bases, bit. surf., pavement and bridge floors 46.598 ft. L.R. 251 (R-2 and R-4), T.R. 268 from village of Cowansville to northwest of intersection of Route 71; also in Parker City Boro and between Bruin and Petrolia Boros, Armstrong and Butler Counties, from The Kelley & Meyer Co., Dollar Bank Bldg., Youngstown, O., **$367,454***bit. on crushed aggregate surf. 41.663 ft. L.R. 278, Sec. 7, T.R. 48 between Hookstown and Frankfort Springs Boro, Beaver Co., from Black Top Paving Co., Box 723, Donora, **$244,581***with c. conc.-bit. surf. wid'n. 16.531 ft. L.R. 63 (R-6) T.R. 119, between Marion Center and Kolleysburg, Indiana Co., from A. F. Moreau & Sons, Inc., In lieu, **$168,199***crushed aggregate and bit. bit. surf., build-up and wid'n. with bit. surf., wid'n. pavement with crushed aggregate base and bit. surf. 5.951 ft. L.R. 40102 (2), T. R. 40, from point near Freeland Boro-Foster Twp. line southwest, Luzerne Co., from M & K Contractors, Inc., Hanover, **$89,669.** CD 6/15.

●Pennsylvania—Pennsylvania Turnpike Comm., 11 N. 4 St., Harrisburg, July 11, grading, drainage, structures and paving 4.89 mi. Sect. 25-A, Philadelphia Exten. of Pennsylvania Turnpike from point 230 ft. west of L.R. 36128 in Clay Twp., easterly for 25,810 ft. to point about 2,000 ft. west of Township route 824 in West Cocalico Twp., Lancaster Co., from H. J. Williams, York, **$2,018,768;** grading, drainage structures, paving Sect. 25-B, Philadelphia Exten. of Pennsylvania Turnpike from point 2,000 ft. east of Twp. route 824 in W. Cocalico Twp. easterly for 14,374 ft to point about 1,214 ft. east of Twp. route 850 in East Cocalico Twp., Lancaster Co., from Ralph Myers, Salem, Ind., **$1,896,394.** CD 6/3.

Tex., Wharton—Wharton Co., Courthouse, July 6, 26.9 mi. grading, drainage structures, flexible base, bit. surf. hr., Precinct 3, from Brown & Root, Inc., P. O. Box 3, Houston, **$295,493,** Est. $208,000. CD 6/21.

Utah, Salt Lake City—City c/o Irma Bitner, recdr., City and County Bldg., June 28, stone filled sheet asphalt resurf. various streets, from Gibbons & Reed, 259 W. 3 South St., **$89,860.**

British Columbia—Province of British Columbia, Parliament Bldgs., Victoria, construct 5.72 mi. Cathedral-Alberni Sect., Island Hy., relocation 1.4 mi. Island Hy. at Mill Bay, from Campbell-Bennett Ltd., 1718 W. 5 Ave., Vancouver, **$643,583** and **$127,478** respectively; relocation 1.23 mi. Island Hy. at Niagara Creek, from Marwell Constr. Co. Ltd., 419 Seymour St., Vancouver, **$292,315.** CD 3/1/43.

British Columbia—Province of British Columbia, Parliament Bldgs., Victoria, July 8, reconstruction 6.25 mi. Wyndell-Creston Sect., Southern Trans-Provincial Hy., from Storms Contg. Co. (Pacific) Ltd., 550 Burrard St., Vancouver, **$109,248.**

CONTRACTS AWARDED

California—State Div. Hys., State Bldg., Los Angeles, plant-mix surf. on base, constr. bridge across Chino Creek 6.5 mi. between point on Rt. 43 about 3.6 mi. west of Corona and Pine Ave., at south end of Euclid Ave. about 7.5 mi. south of Ontario, Riverside and San Bernardino Counties, to A. Teichert & Son, Inc., Box 113, Sacramento, **$598,859.** Bids 6/30. CD 6/2.

Fla., Pensacola—City, paving 10 mi. streets, to Noonan Constr. Co., 814 E. Gregory St., **$291,610.** Bids 6/28. CD 7/8, under LB.

Conn., New Haven—City Dpt. P. Wks., Hall of Records, b. conc. paving State St., to C. W. Blakeslee & Sons, 58 Waverly St., **$192,595.** CD 8/29/43.

Idaho—State Hy. Dpt., Boise, b. conc. resurf. 7,024 mi. U. S. 93 alternate, Blaine Co., to Western Constr. Co., 1695 Yellowstone Ave., Pocatello, **$60,765,** est. **$78,125;** reconditioning roadbed, bit. surf. 7.914 mi. U. S. 30, Cassia Co., to Parson & Fife, Brigham City, Utah, **$102,448,** est. $124,311. Bids 6/17, awarded 6/20. CD 6/16.

Ia., Primghar—City, Louis Wiggins, clk., City Hall, grade, curb, gutter, storm sewers, pave various streets, to Jensen & Krage, 2220 Hawkeye Dr., Sioux City, **$134,808.** Buell & Winter, 508 Insurance Exchange Bldg., Sioux City, engrs.

Idaho — State Hy. Dpt., Boise, roadbed drainage, structures, crushed gray. surf. 2.109 mi. Wayan-Junction Gray Rd. 7.218 mi. Grays Lake Hy. from Conda Junction to Blackfoot River, Caribou Co., to L. T. Johnson, Ogden, Utah, **$112,760,** est. $116,663. Bids 6/24, awarded 7/7. CD 6/15.

Michigan—State Hy. Dpt., Lansing, c. conc. 8.984 mi. M 22 from 1.5 mi. southeast of Binghams, northeast to Suttons Bay, F 45-21 C2, Leelenau Co., to Lowell Constr. Co., Wyandotte, **$503,000.** Bids 5/25, awarded 6/14. CD 5/11.

Michigan—State Hy. Dpt., Lansing, c. conc. 9.466 mi. U. S. 31 (relocation) from M 21 east of Holland north to West Olive, S. P. F 70-41 C2, Ottawa Co., to Carl Goodwin & Son, Allegan, **$544,000.** Bids 6/23, awarded 7/7. CD 6/15.

●Minnesota—State Hy Dpt., St. Paul, grading, 2 concrete box culverts, 15.2 mi. S. P. 4701-04 (TH 4150) and S. P. 4701-05 (TH 4150), and grading, 2 concrete box culverts 9.6 mi. S. P. 6102-03 (TH-28-28) and S. P. 6103-02 (TH 28-28) F 260 (2), to De Ruyter Bros., Willmar, **$188,110** and **$217,561** respectively***plant mixed bit. surf. 21.6 mi. S. P. 5606-06 (TH-10-2) S. P. 5606-08 (TH-10-2) and S. P. 5621-04 (TH 78-181) and road mixed bit. surf. 14.8 mi. S. P. 5608-11 (TH 45-142) S. P. 2611-04 (TH 59-3) and S. P. 2613-02 (TH 59-3), Megarry Bros., St. Cloud, **$119,224** and **$94,128** respectively***grading, concrete box culverts 6 mi. S. P. 5005-37 (TH 56-81), to Boyum Constr. Co., Rushford, **$85,000***road mixed bit. surf. 17.5 mi. S. P. 3101-08 (TH 58) to E. W. Coons, Inc. Hibbing, **$90,277***plant mixed bit. surf. 10.6 mi. S. P. 1901-18 (TH 13-117) S. P. 7001-15 (TH 13-117) and S. P. 7005-**02** (TH 101-187), to J. V. Gleason, Box 74, St. Louis Park, **$53,439** ***grading, 2 concrete box culverts 6.4 mi. S. P. 6602-03 (TH 19-100), to E. I. Studer, 5244 Zenith Ave. S., Minneapolis, **$128,837***plant mixed bit. surf. 12 mi. S. P. 5608-02 (TH 29-29), to C. L. Nelson Co., Brainerd, **$60,342.** Grand total $1,036,995. Bids 7/1. CD 6/16.

●New York—Bureau Contracts & Accounts, Alfred E. Smith Memorial Office Bldg., Albany, 8 in. c.conc. 4.75 mi. Grand Island State Parkway (West River Parkway) GISP 49-1, Erie Co., to Depew Paving Co., Inc. 4935 Broadway, Depew, **$1,384,615.** Bids 6/8. CD 6/10, under LB.

Nevada—State Hy. Dpt., Carson City, constructing portion 2.45 mi. State Hy. System from Hash Lane Spur, 1.62 mi. south of Reno south city limits to Mount Rose St., Reno, Washoe Co., to Isbell Constr. Co., S. Virginia Rd., Reno, **$398,186.** Bids 7/7. CD 6/29.

O., Cleveland — City, City Hall, grading, draining, curbing, imprv. E. 177 St. from Harvard to Invermere, E. 176 St. from Harvard to Glen Dale, Strandhill Rd., from Harvard to Invermere and Lee Heights Blvd. from Harvard to Invermere, to Great Lakes Constr. Co., 2201 Mulberry Ave., **$74,078.** Awarded 7/6. C. J. Wenrich, City Hall, city engr.

Tex., San Antonio—City, City Hall, reconstruction, repairing, grading, surf. streets, north and west side, **$90,000;** street reconstruction, repairing, surf., open ditching, **$110,000,** force account. CD 8/30/45.

New Brunswick—Province of New Brunswick, Fredericton, grading 5 mi Rt. 23, Harcourt, to Dexter Constr. Co. Ltd., Fairville, Approx. **$50,000.** CD 11/8/42.

†Oregon—Bureau of Public Roads, General Services Admin., Broadway-Oak Bldg., Portland, Ore., surf., light bit. surf. 13 mi. road between Detroit and Niagara, Marion Co., to Rogers Constr. Co., Box 231, Portland, **$195,-995.** Bids 6/7, awarded 7/7. CD 6/27.

EARTHWORK, WATERWAYS

BIDS ASKED

July 26

†Missouri—U. S. Eng., 601 Davidson Bldg., 10 E. 17 St., Kansas City, S, Mo. Approx. 10,000 ft. revetment, dike repair and rock fill, Lexington Bend, Missouri River, Wevaers to Parkville Bends. Approx. 392.5 mi. above mouth and approx. 3.5 mi. upstream from Parkville. Serial No. Eng.-23-028-50-5.

July 27

Ont., Cobourg—J. M. Somerville, secy., c/o Dpt. P. Wks., Hunter Bldg., Ottawa, dredging 20,962 cu. yd. sand, gravel, and silt. Approx. $25,000. R. Blais, c/o owner, engr.

July 29

Tex., Beaumont — Jefferson Co. Drainage Dist. 6, Beaumont, drainage, straightening Hillebrandt Bayou and lining with concrete, from 16 St. to T. & N. O. Ry. $450,000. L. V. Norris, dist. engr. CD 5/31/46.

LOW BIDDERS

†Illinois—U. S. Eng., **830 W. Broadway,** Louisville, Ky., July 14, flood protection Mounds and Mound Cache River Diversion, Unit 2B, Serial No. Eng.-15-029-49-141, from R. B. Potashnick, Cape Girardeau, Mo., **$934,193.** Est. $637,585. CD 6/29.

†Illinois—U. S. Eng., 830 W. Broadway, Louisville 3, Ky., June 28, flood protection, Reevesville Serial No. Eng.-15-029-49-151, from Traylor Bros., Inc., Station B, Box 66, Evansville, Ind., **$156,988.** Est. $233,292. CD 6/22.

†Indiana—U. S. Eng., P. O. Box 59, Louisville, Ky., June 23, service gates and emergency gate for Cagles Mill Reservoir, Mill Creek, Serial No. Eng.-15-029-49-166, from Guy F. Atkinson Co., and Willamette Iron & Steel Co., 2869 N. W. Front St., Portland, Ore., **$98,877.** CD 6/13.

†South Carolina—U. S. Eng., Customhouse, Charleston, June 28, dredging Winyah Bay, 27 ft. Proj. (Gorge Channel) near Georgetown, Serial No. Eng.-38-081-49-29, from Atlantic Gulf & Pacific Co., 15 Park Row, New York, N. Y., **$158,387.** Est. $127,537. CD 6/17.

CONTRACTS AWARDED

†Ala., Birmingham — FACILITIES — U. S. Eng., P.O. Box 1179, Mobile, Zone 7, constr., repairs of Air National Guard Facilities at Birmingham, Municipal Airport, Serial No. Eng-01-076-49-143, to A. L. Sullivan, 3711 Third Ave. S., **$89,122.** Bids 5/19, awarded 6/16. CD 5/4.

†Arkansas and Tennessee—U. S. Eng., P. O. Box 97, Memphis, Tenn., casting approx. 72,000 squares articulated concrete mattresses and del. approx. 21,000 cu. yd. ready-mixed concrete, Richardson Landing, Tenn., Serial No. Eng.-40-041-49-146, to Weymouth Constr. Co., 2174 Person Ave., Memphis, Tenn., **$718,189.** Bids 6/14, awarded 6/14. CD 6/29, under LB.

Mont., Great Falls—HANGAR—Montana National Guard, Helena, repairs and alterations to hangar, installing heating facilities, motor pool bldg., Gore Field, to Sletten Constr. Co., 1301 10 Ave. N., **$143,416.**

●†New York—U. S. Eng., 925 New Federal Bldg., Pittsburgh, 19, Pa., Olean Flood Protection Proj., Unit 2, Contr. Sec., A. Allegheny River, Serial No.-36-058-49-128, to Elmhurst Contg. Co., Inc., 97 Place, Corona, **$1,058,641.** Bids 6/10, awarded 6/20. CD 6/20, under LB.

†N. M., Alamogordo—FAMILY QUARTERS —U. S. Eng., P.O. Box 1538, Albuquerque, family quarters, Holloman Air Force Base, Serial No. Eng. 29-005-49-307, basic alternate design, to Readycut House Co., 3601 Polk St., Houston, Tex., **$436,500.** Bids 6/2. CD 6/14, under LB.

†Oregon—U. S. Eng., Pittock Block, Portland, Zone 5, clearing damsite and borrow areas and construction portion earthfill dam embankment, excavating for concrete spillway and constr. river diversion channel at Lookout point damsite, 23 mi. southeast of Eugene on Middle Fork of Willamette River, Lane Co., Serial No. Eng.-35-026-49-612, to C. F. Lytle Co. & Amis Constr. Co., Moses Lake, Wash., **$991,370.** Est. $1,435,054. Bids 6/15, awarded 6/21. CD 6/20, under LB.

†Canal Zone—AIRFIELD LIGHTING—U. S. Eng., Box 5043, rehabilitation, modernizing airfield, lighting sys., Howard Air Force Base, Serial No. Eng. 96-505-49-30, to L. R. Sumner, P. O. Box 2010, Balboa, Canal Zone. **$51,575.** Bids 6/23. CD 6/15.

N. S., Greenwood — HOUSING — Central Mortgage & Housing Corp., 1032 Gottinger St., Halifax, 100 houses, D. N. D. married quarters, at Air Station, to Diamond Constr. Co., 60 Carleton St., Fredericton. Approx. **$700,000.** Bids 6/18. CD 6/9.

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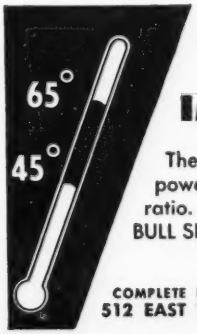

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LOW BIDDERS

†**Connecticut**—U. S. Eng., Army Base, Boston, 16, Mass., received no bids June 24, dredging in New Haven Harbor in upper Harbor about 1 mi. south of Tomlinson Bridge. Serial No. Eng.-19-016-40-113. **$120,960.** CD 6/17.

N. Y., Idlewild—SUBSTATIONS FOUNDATIONS—Port of New York Auth., 111 8 Ave., New York, Zone 11, July 11, foundations for primary substations at New York International Airport, Contr. NYA-94, from Gull Constr. Co., 5315 Lawrence St., Flushing. **$88,219.** CD 6/24.

CONTRACTS AWARDED

†**Kan., Topeka**—RUNWAYS—Dpt. Air Force, Pentagon Bldg., Arlington, Va., runway constr., to Waco Contg. Co., 5115 Belair Rd., Baltimore, 6, Md., **$58,500.**

Utah, Heber—AIRPORT—City and Wasatch Co., Heber, State Aeronautics Dpt., 525 W. 13 St. S., Salt Lake City, and Civil Aeronautics Admin., 14 St. between E and Constitution Aves. N. W., Wash., D. C., constructing Heber Valley Airport, 1 runway, 1 apron, access road and culinary water supply, to Reynolds Constr. Co., Springville, **$93,429.**

●**Puerto Rico**—AIRPORT—Puerto Rico Transportation Auth., San Juan, grading, drainage sys., clearing, Isla Verde International Airport, to Blythe Mill Co., 2911 Hutchinson Ave., Charlotte, N. C., **$1,590,348.** Bids 5/2 CD 5/12, under LB.

PUBLIC BUILDINGS

BIDS ASKED

July 20

N. Y., Brookhaven—LABORATORY—Brookhaven National Laboratory, P. O. Box 150, Patchogue, laboratory alterations.

July 21

Tenn., Johnson City—SCHOOL—City, Annie Wilder Stratton School. Leland K. Cardwell, Johnson City, archt.

July 29

†**Washington**—HOUSING—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, temporary housing at Chief Joseph Dam, Serial No. C CIVENG-45-105-50-1.

August 1

Calif., Riverside—COLLEGE—Riverside City School Dist., Riverside, 2 story, 30,000 sq. ft. reinf.-conc. Riverside College addn., $250,000. G. S. Wilson, 3681 6 St., archt. CD 5/13.

N. S., Halifax—SCHOOL—H. J. Begonson, secy., c/o Bd. School Trustees, 81 Sackville St., Westmont School. Approx. $400,000. Plans deposit $25. CD 10/1.

August 3

Ga., Athens — HOSPITAL — Clarke Co., Athens, hospital addn. Extended date. C. Wilmer Heery, 128½ College Ave., archt. CD 6/29.

August 8

Ga., Atlanta—HEALTH—City, health bldg. $450,000. Plans deposit $25. Tucker & Howell, Rhodes-Haverty Bldg., archts. CD 8/11/48.

August 10

Va., Pearisburg—HOSPITAL—Comrs., Giles Co., Pearisburg, Giles Memorial Hospital, Fort Branch Sect. $625,000. Stone & Thompson, 211 Church Ave. W., Roanoke, archts.

September

●**Ill., Urbana**—VETERINARY MEDICINE—University of Illinois, Urbana, veterinary medicine bldg. $1,700,000. Childs & Smith, 20 N. Wacker Dr., Chicago, Zone 6, archts. CD 4/13/45.

LOW BIDDERS

Miss., Meadville—HOSPITAL—Franklin Co., Meadville, cancelled bids to have been opened July 22, hospital. Will re-advertise. CD 6/21.

●**N. Y., Utica**—HOUSING—Municipal Housing Auth., Washington Courts and Whitesboro St., June 15, general contract housing for Post-War Proj. NYS-27, Site C, located in South Utica on Merriline, Hazelhurst and Hillcrest Aves., in Utica, from F. H. Rich & Co., 101 Park Ave., New York, Zone 17, **$1,043,350.** CD 5/19.

CONTRACTS AWARDED

Ariz., Flagstaff — PLANT — State College, Flagstaff, central heating and power plant for State College, to W. S. Ford Constr. Co., Flagstaff, **$190,000.** Awarded 7/8. CD 1/28.

Ariz., Tempe—SHOP—Arizona State College, Tempe, campus maintenance shop, to McGinty Const. Co., 1 Ave. and Jefferson St., Lahrs Bldg., **$84,133.** Awarded 7/8. CD 1/28.

●**Fla., Coral Gables**—HIGH SCHOOL—Dade Co. Bd. P. Instruction, c/o contractor, Coral Gables High School, to Edward M. Fleming Constr. Co., 3504 N. Miami Ave., Miami, **$1,161,053.** Bids 7/6. CD 6/6.

FOREIGN

British East Africa, Uganda—Uganda Electricity Bd., Grand Bldgs., Trafalgar Sq., London, W. C. 2, England, receiving bids August 15 for Owen Falls Hydro-Electric Scheme, incl. concrete gravity and sluice dam, founds. and superstructure power station, auxiliary bldgs., rein.-con. bridge, access roads, railways, etc. Kennedy & Donkin, Alliance House 12 Caxton St., Westminister, London, S. W. 1 and Sir Alexander Gibb & Partners, Queens Anne's Lodge, London S.W. 1, England, engrs. Plans deposit £ 100.

LATIN AMERICA

Cuba, Cardenas—Gulf Oil of Cuba, Cardenas, deep well sinking, Jarahuleca area. Owner builds.

Mexico—Mexican Govt., Com. de Papoloapan, Humboldt, 20 Mexico, D. F., Presidente Miguel Aleman irrigation dam, to Cia. Constructora Ed Aguila, S. A., Paseo dela Reforma, 30, Mexico City. Approx. **$11,500,000.** Awarded 7/8. CD 6/17, under LB.

✠Mexico — Nayarit State Govt., Palacio del Estado, Nayarit (Tepic) and Durango State Govt., Palacio del Estado, Durango (Durango City) plan 106 mi. road between Nayarit and Durango, **$2,500,000.**

Mexico, El Marcues—Mexican Govt., Srta. de Recursos Hidraulicos, Balderas, 94, Mexico City, plans irrigation dam, irrigating 160,000 to 200,000 acres. **$5,000,000.**

Mexico, Guadalajara — Municipal Government, Palacio Municipal, Guadalajara, Jal., plans city hall, **$500,000.**

Mexico, Mexico City—Productos de Construcion S. A. Lic., Manuel Savinon, rep., Gante 4-61, Mexico City, plans high pressure concrete tube factory. **$350,000.**

PUBLIC BUILDINGS

After July 22

✠Mont., Fort Peck—RECREATION BLDGS.—U. S. Eng., Fort Peck, recreation bldgs., Pines Recreational Area, incl. closed shelter, remodeling 3 bldgs., sewage disposal sys., septic tank, tile field, sand filter, approx. 250 ft. pipeline, Serial No. CIVENG 24-016-50-2. Plans deposit $10.

July 26

Ia., Primghar—POWER PLANT—City, City Hall, power plant improvs., incl. plant addns., generating equip. power piping, switchboard improvs. $70,000. Buell & Winter, 508 Insurance Exchange Bldg., Sioux City, engrs.

N. Y., Glenwood Landing — SCHOOL — Bd. Educ., Union Free School Dist. 3, Glenwood Landing, school addn. $800,000. Coffin & Coffin 125 E. 46 St., New York, Zone 17, archts.

N. Y., Massapequa—SCHOOL—Bd. Educ., Union Free School Dist. 23, Massapequa, school, $850,000. Kreappe & Johnson, 265 E. 149 St., New York, Zone 55, archts.

July 27

Colo., Craig — HOSPITAL — Memorial Hospital Bd., c/o Bldg. Comn., Craig, 1 story, bsmnt., 136x145 ft. X shaped hospital. $201,000. Extended date. Walter H. Simon, 1922 E. 18 St., Denver, archit. CD 7/11.

July 28

N. Y., Irondequoit—SCHOOL—Bd. Educ., Laurelton Free School Dist. 1, Irondequoit, school addn. $285,000. Plans deposit $30. Kaelber & Waasdorp, 311 Alexander St., Rochester, archts. CD 10/12/44.

July 29

Ind., Greencastle—STUDENT UNION— De Paw University Bd. Trustees, Greencastle, 2 story, 52x164 and 66x104 ft., brick, stone, rein.-con. steel student union bldg., $575,000. Plans deposit $25. McGuire & Shook, 1400-01 Fletcher Trust Bldg., Indianapolis, archts. Ins. M. Botz Eng. Co. 704 Merchants Bank Bldg., Indianapolis, mech. engr. CD 10/25/46.

✠Washington—HOUSING—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, temporary housing at Chief Joseph Dam, Serial No. C CIVENG—45-108-50-1.

July 30

Ont., Sudbury—SCHOOL—Secy., c/o Sudbury High School Bd., 11 Elm St., school, MacKenzie St. Approx. $540,000. Plans deposit $75. L. W. Fairbro, Sudbury, and J. B. Sutton, 99 Larch St., archts. CD 4/14/48.

August 1

Calif., Riverside—COLLEGE—Riverside City School Dist., Riverside, 2 story, 30,000 sq. ft. rein.-con. Riverside College addn., $250,000. G. S. Wilson, 2681 6 St., archt. CD 6/13.

Conn., Bristol — SCHOOL — Bd. Educ., City Hall, school, $550,000. Raymond J. Percival, 12 Haymes St., Hartford, archt. CD 11/26/48.

N. S., Halifax—SCHOOL—H. J. Begonson, secy., c/o Bd. School Trustees, 81 Sackville St., Westmont School. Approx. $400,000. Plans deposit $25. CD 10/1.

August 2

Ga., Atlanta — SCHOOL — Fulton Co. Bd. Educ., Courthouse, 2 story, 55,000 sq. ft. Southwest High School, approx. $250,000. Plans deposit $25. A. Thomas Bradbury, 60 5 St. N. E., archt. CD 7/11.

N. Y., Long Island City—HOUSE FOUNDATIONS, etc.—New York City Housing Auth., 63 Park Row, New York, Zone 7, foundations, appurtenances for Sect. II of Ravenswood Houses, Proj. NYC-20, incl. comfort station and buildings 18 to 31 (inclusive) located in area bounded by 34 Ave., 21 St., 36 Ave. and 12 St. Plans deposit $75. CD 9/8/47.

August 4

●Ky., Frankfort—OFFICE—State Property & Bldgs., J. B. Rieman, sr. engr., state office bldg., $4,500,000. CD 1/28/48.

●Tex., Deer Park — HIGH SCHOOL — Deer Park Independent School Dist., Deer Park, masonry, steel, concrete, structural steel frame, Junior-Senior High School, concrete slab fdn. $1,750,000. Harry D. Payne, 3906 Main St., Houston, archt. CD 1/13.

Bids Asked

N. Y., Dannemora — CELL BLOCK, etc. — Bureau Contracts & Accounts, Albany, cell block and steam tunnel, $912,000. Eggers & Higgins, 542 Fifth Ave., New York, Zone 18, archts. CD 9/24/45.

LOW BIDDERS

Ill., Carthage—HOSPITAL—City, City Hall, 1 story, bsmnt., concrete, brick hospital, from L. & R. Constr. Co., 6609 Latta Pl., St. Louis, Mo., **$414,975.** Fugard Burt & Wilkinson, 520 N. Michigan St., Chicago, Zone 11, archts. CD 5/19, under LB.

Ind., North Madison—HOSPITAL—State of Indiana, P. Wks. & Supply Div., 404 State House, Indianapolis, July 7, hospital alterations, addns., North Madison Hospital, from J. D. Jennings Corp., 502 E. Lee St., Louisville, Ky., **$725,400.** CD 6/28.

●N. Y., Brooklyn—OFFICE—Bd. Transportation, 250 Hudson St., New York, Zone 13, July 12, general contract central office bldg., from Grove, Shepherd, Willson & Krige, Inc., 247 Park Ave., New York, Zone 17, **$4,528,030** ***plumbing, from Malan Plumbing Co., Inc., 2067 Broadway, New York, Zone 23, **$279,320** ***heating and ventilating, from J. L. Murphy, Inc., 340 E. 44 St., New York, Zone 17, **$384,350** ***electrical work, from Jandous Electric Constr. Corp. and Hoffman & Elias, Inc., 210 E. 40 St., New York, Zone 17, **$1,287,090**; elevators and moving stairs, from Otis Elevator Co., 260 Eleventh Ave., New York, Zone 1, **$874,344.** CD 6/6.

●N. Y., Brooklyn—HOUSES—New York City Housing Auth., 63 Park Row, New York, Zone 7, general contract Sect. I, consisting of Bldgs. 4 to 10 (inclusive) of Farragut House, Proj. No. NYS-291 in area bounded by Sands, Bridge, York and Navy Sts., from John A. Johnson & Sons, Inc., 270 41 St., Brooklyn, Zone 32, **$5,126,000*****heating and ventilating, from Dierks Heating Co., 43-32 33 St., Long Island City, **$544,444*****electrical work, from Martin Eustein Co., Inc., 227 Lewis Ave., Zone 21, **$305,670*****plumbing, from J. L. Murphy, Inc., 340 E. 44 St., New York, Zone 17, **$611,000.** CD 7/7.

●N. Y., Utica—HOUSING—Municipal Housing Auth., Washington Courts and Whitesboro St., June 15, general contract, housing for Post-War Proj. NYS-27, Site C, located in South Utica on Merrillane, Hazelhurst and Hillcrest Aves., in Utica, from F. H. Rich & Co., 101 Park Ave., New York, Zone 17, **$1,043,350.** CD 5/19.

✠Alaska, Naknek — APARTMENTS — Civil Aeronautics Admin., Anchorage, June 21, two 4 unit 2 story, bsmnt., 32x16 ft. and one 3 unit, 1 story, 20x100 ft. apartments, Schedule 1, from McPhail Constr. Co., 2904 Alaska St., Tacoma, Wash., **$113,896**; Schedule 2, from Morrison-Knudsen Co., Inc., 319 Broadway, Boise, Idaho, **$279,347.** CD 6/7.

CONTRACTS AWARDED

Ariz., Flagstaff — PLANT — State College, Flagstaff, central heating and power plant for State College, to W. S. Ford Constr. Co., Flagstaff, **$490,000.** Awarded 7/8. CD 1/28.

●Calif., Richmond—AUDITORIUM, etc.—City, City Hall, 3 story, 107,734 sq. ft. rein.-con. auditorium and art center in Civic Center with balcony on 3 sides of interior, to Clinton Constr. Co., 923 Folsom St., San Francisco, **$1,735,900.** Bids 6/6. CD 6/14, under LB.

●Fla., Coral Gables—HIGH SCHOOL—Dade Co. Bd. P. Instruction, c/o contractor, Coral Gables High School, to Edward M. Fleming Constr. Co., 3204 N. Miami Ave., Miami, **$1,1616,053.** Bids 7/6. CD 6/6.

●Ill., Chicago — DORMITORY — Cook Co. Medical Center Comn., 720-738 S. Wolcott St., Zone 12, dormitory, West Side Medical Center, to Patrick Warren Constr. Co., 815 N. Kedzie St., Zone 22, **$1,584,184.** Bids 6/21. Awarded 7/12. CD 6/7.

✠Ill., Hines—MOTOR STORAGE—Dpt. Army, National Guard Bureau, State of Illinois, Camp Ellis, twelve 1 story, concrete block motor storage bldgs., to Ashland Constr. Co., 6806 N. Clark St., Chicago, **$514,600.**

Ind., Westville—DORMITORY—I. E. Levine, chn., Northern Indiana Hospital Bd., Westville, general contract four dormitory units, Northern Indiana Hospital, to Permanent Constr. Co., 208 S. LaSalle St., Chicago, Ill., **$939,300.** Bids 4/20. CD 7/12, under LB.

La., Ruston — COURT HOUSE — Lincoln Parish Police Jury, Ruston, 5 story concrete, brick, limestone court house, to Southern Builders, Inc., P. O. Box 842, Shreveport, **$591,092.** Bids 7/6, awarded 7/11. CD 7/12.

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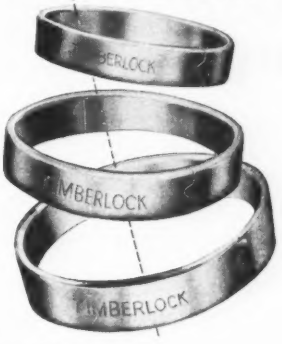

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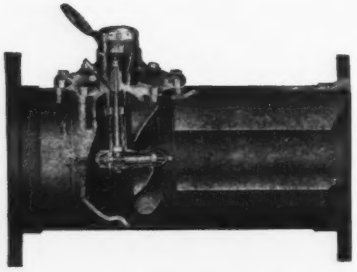

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Ky., Henderson—GENERATORS, etc.—City, City Hall, power and light plant imprvs. Contr. 10, turbine generators, to Dravo Corp., 4810 Prospect St., Cleveland, O., **$380,270;** Contr. 12, steam generators, to Oberle-Jordre, Inc., Front and Rose Sts., **$340,642.** Bids 5/16, CD 6/3.

♦N. M., Albuquerque—OFFICERS MESS—U. S. Eng., Albuquerque, officers mess, Sandia Base, Serial No. Eng. 29-005-49-67, to Robert E. McKee, P. O. Drawer 562, El Paso, Tex., **$510,443.** Bids 6/22. CD 6/28, under LB.

♦N. M., Los Alamos—BUILDINGS—U. S. Atomic Energy Comn., Los Alamos, 3 rein.-con. buildings, Inv. No. 291-49-157, to Haddock Engineers Ltd. & Assoc., Santa Fe, **$482,544.** CD 6/7.

♦N. M., Los Alamos—BUILDINGS—U. S. Atomic Energy Comn., Los Alamos, buildings and related services, Inv. No. 291-49-166, to Robert E. McKee, P. O. Box 1706, Santa Fe, **$837,360.** Bids 6/27. CD 7/12, under LB.

♦N. Y., Brookhaven—COSMOTRON—Brookhaven National Laboratory, P. O. Box 150, Patchogue, cosmotron bldg., to Robert Nash Constr. Co., 331-15 Main St., Flushing, **$608,400.** Bids 7/1. CD 6/7, under LB.

●Pa., Lancaster—HOSPITAL—Lancaster General Hospital, Lancaster, 4 story, U shaped 180x190 ft. hospital addns., alterations, 1 story, 65x90 ft. utilities bldg., to John H. Wickersham Eng. & Constr. Corp., Lancaster, **$1,387,000.** Bids 6/29, awarded 7/7. CD 6/9.

Tex., Kilgore — HOSPITAL — City, 50 bed hospital, to Eckert-Fair Constr. Co., Liberty Bank Bldg., Dallas, **$715,000.** Bids 6/6, awarded 7/7. CD 6/14, under LB.

Alta., Edmonton — SCHOOL — Edmonton Public School Bd., Edmonton, Inglewood and Bellevue Schools, to Pridham Constr. Co. Ltd., 8029 104 St. Approx. **$405,080.** Bids 6/24. R. S. Shepard, c/o owner, archt. CD 6/9.

N. S., Halifax—HOUSING—Central Mortgage & Housing Corp., 1032 Gottingen St., 110 houses, D. N. D. married quarters, H. M. C. S. Cornwallis Naval Base, to Diamond Constr. Co., 60 Carelton St., Fredericton. Approx. **$770,000.** Bids 6/15. CD 6/10.

Ont., Toronto—ARCHIVES—University of Toronto, Simcoe Hall, 2 story, bsmnt., 40x110 ft., rein.-con. frame steel archives bldg., Queens Park, to Jackson-Lewis Co. Ltd., 80 King St. W. Approx. **$400,000.** Bids 6/27. CD 6/8.

COMMERCIAL BUILDINGS

BIDS ASKED

July 28

Ore., Cottage Grove—HOSPITAL—Cottage Grove Hospital Assn., Cottage Grove, 32 bed T-shaped 44x158 ft. and 44x174 ft. hospital, $250,000. Roald, Schmeer & Harrington, Spalding Bldg., Portland, archts.

August 4

●N. Y., New York—HOSPITAL—Columbia Presbyterian Medical Center, Broadway and 168 St., New York, hospital addn. **$2,000,000.** Voorhees, Walker, Foley & Smith, 101 Park Ave., New York, Zone 17, archts. CD 12/27.

SOON LETS CONTRACT

Ala., Montgomery—HOSPITAL, etc.—Jackson Hospital & Clinic, Inc., c/o Raymond Sizemore, archt., 16 S. Hull St., Montgomery. Sizemore, archt., 16 S. Hull St., Montgomery, soon lets contract hospital and clinic. CD 3/4.

Ga., Atlanta — APARTMENT DEVELOPMENT—Stratford Arms Apartments, Inc., c/o Hal W. Greer, archt., 35 W. Paces Ferry Rd., soon lets contract apartment development.

Ill., Highland Park—APARTMENTS—Highland Park Apartment Bldg. Corp., c/o Loebl, Schlossman & Bennett, archts., 333 N. Michigan St., Chicago, Zone 1, soon lets contract one 2 story, bsmnt., 100x250 ft., and one 2 story bsmnt., 30x85 ft. bldgs. $350,000.

Mo., St. Louis—BUILDING CENTER—Salvation Army, c/o Div. Headquarters, Fullerton Bldg., 122 N. 7 St., Zone 1, soon lets contract 1 story, 49x92 ft., and 34x46 ft. L-shaped, brick rein.-con. Lafayette Park Center, incl. shops, kitchen, recreation center, class rooms, etc., Dolman and Carroll Sts., Rathmann, Koelle & Carroll, 316 N. 8 St., Zone 1, archt. CD 4/26.

Mont., Lewistown—LODGE—Aerie No. 374, Fraternal Order of Eagles, Lewiston, soon lets contract, lodge, $250,000. G. H. Shanley, Great Falls, archt.

N. Y., Riverhead—HOSPITAL—Riverhead Hospital Assoc., 732 East Main St., soon lets contract hospital, $500,000. William I. La Fon, 11 Main St., Southampton, archt. CD 6/11.

N. D., Fargo—HIGH SCHOOL—The Diocese of Fargo, Fargo, soon lets contract, Shanley High School, $325,000. W. F. Kurke & Assoc., Fargo, archts.

S. C., Clinton—HOTEL—Clinton Community Hotel Corp., c/o Roy E. Hitchcock, archt., Athens, Ga., soon lets contract hotel. Bids 3/22 rejected.

Wis., Appleton—ART CENTER—Lawrence College, 112 S. Union St., soon lets contract, 1 story, 130,000 cu. ft. native stone, steel Worcester Art Center, rein.-con. fdn. and floor, $150,000. Richard Phillips, 756 N. Milwaukee St., Zone 2, Milwaukee, archt. CD 4/27.

LOW BIDDERS

Ga., Atlanta — OFFICE—Plantation Pipe Line Co., Healey Bldg., rejected bids June 1, office, L.B. **$691,745.** CD 6/7, under LB.

N. H., North Conway—HOSPITAL—Memorial Hospital, Intervale Rd., rejected bids June 24, hospital addns., alterations. Will readvertise. Curtin & Riley, 45 Newbury St., Boston, Mass., archts. CD 6/28, under LB.

CONTRACTS AWARDED

●**Fla., Green Cove Springs**—HOME—Penny Farms Assn., Green Cove Springs, Penny Farms Home addn., dormitory, incl. 120 apartments, hospital, cafeteria, doctors office, recreation hall, superintendents office, to Hillyer & Lovan, Consolidated Bldg., Jacksonville, Zone 1. **$1,000,000.** Awarded 7/8.

Ind., Bloomington—APARTMENTS—Hillcrest Apartments, Inc., c/o J. L. Schreen, 415 Cal-Wayne Bldg., Fort Wayne, 41 apartments, Indiana University faculty members. Owner builds. **$400,000.** A. M. Strauss, 415 Cal-Wayne Bldg., Fort Wayne, archt.

●**Ia., Des Moines**—HOUSING—Franklin Court Aparaments, Inc., 49 St. and Franklin Aves., garden court apartment, to Rosoff Bros., 262 Lexington Ave., New York, N. Y., **$1,411,000.** Edwards & Green, Broadway and Carman St., Camden, N. J., archts.

Ia., Waterloo—HOSPITAL—Scholtz Memorial Hospital, general contract hospital, to Jens Oleson & Sons Constr. Co., Waterloo, **$654,759.** Bids 6/29. CD 6/22.

Kan., Kansas City—HOUSING—Sturgeon & Taylor, 6909 Nall St., Kansas City, Kan., Georgian Village, Tennyson St. and Longwood Ave., Owner builds. **$550,000.** W. J. Koch, 4638 Mill Creek St., Kansas City, Kan., archt.

Md., Takoma Park—THEATRE and SHOPPING CENTER—Kogod-Hahn, 813 Massachusetts Ave., N. W., Wash., D. C., theatre and shopping center, consisting of 90x150 ft. brick, stone, steel theatre and ten 1 story bldgs., air-conditioned, to Roscoe Eng. Co., 1625 Vermont Ave., N. W., Wash., D. C., Approx. **$450,000.** Bids 4/20. CD 5/12.

●**Mass., Cambridge**—HOUSING—Harvard University, Cambridge, graduate student housing center, Jarvis Field, to George A. Fuller Co., 11 Beacon St., Boston. Approx. **$3,000,000.** Bids 5/31, awarded 6/8. CD 5/17.

●**Minn., Minneapolis** — HOUSING—Donovan Constr. Co., 1755 Carroll Ave., St. Paul, 58 unit housing, Excelsior Blvd., opposite Meadowbrook Golf Course, owner builds. **$6,000,000.** P. Crosier & Son, 2441 Lyndale Ave. S., archts.

Minn., Winona—BUILDING—Young Men's Christian Assn., S. A. Heyd, genl. secy., Winona, YMCA bldg., to H. B. Kilstofte, 3 and Winona Sts. **$414,987.** Bids 6/1. CD 5/18.

N. H., Manchester—RESIDENCES—Boston Development Corp., 294 Washington St., Boston, Mass., 86 single, 22x36 ft. residences, off N. Union St. Owner builds. Approx. **$600,000.** Joseph Selwyn, 14 Linden Ave., Belmont, Mass., archt.

N. Y., Freeport—APARTMENT—Levine & Litwin, c/o Kavy & Kavovitt, archts., 44 Court St., Brooklyn, Zone 2, 2 story garden type apartment on 2½ acre plot, Ocean Ave. and Front St. Owner builds. **$500,000.**

N. Y., New York—HEALTH CENTER—New York Hotel Trades Council & Hotel Assoc. of New York, 226 W. 47 St., Zone 19, altering, converting Y.M.C.A. bldg. into health center, to James King & Son, Inc., 250 Fifth Ave., New York, Zone 1. Approx. **$500,000.** Bids 4/6. CD 3/30.

N. Y., New York — CONVENT, etc.—St. Elizabeth R. C. Church, 268 Wadsworth Ave., convent and school, 167 St. and Wadsworth Ave., to John Kennedy & Co., 250 E. 42 St., New York, Zone 17. Approx **$950,000.** W. J. Boegel, 516 Fifth Ave., New York, Zone 18, archt. CD 2/2.

●**N. C., Winston-Salem**—HOUSING—Owner, c/o contractor, 229 negro housing units, to Raymond G. Burge, Martinsville, Va., Approx. **$1,500,000.**

Tex., San Antonio—HOUSING—E. J. Burke & Sons, 4226 S. Zarzamora, dwellings, vicinity WOW Hospital. Owner builds. **$450,000.** CD 6/30.

INDUSTRIAL BUILDINGS

BIDS ASKED

July 26

Minn., Mankato — GARAGE, etc. — Blue Earth-Nicollet Cooperative Rural Electric Assn., Mankato, 1 story, 125x125 ft. garage and office. $100,000. Plans deposit $15. E. H. Schmidt & Co., Mankato, archts.

July 27

Alta., Edmonton—FREIGHT SHEDS and TERMINAL — H. Meeiwright, ch. engr. Canadian National Rys., Winnipeg, Man., 50x750 ft. and 55x102 ft. concrete, steel, brick freight sheds and terminal. $500,000. Plans deposit $25. CD 11/19/47.

SOON LETS CONTRACT

Ala., Andalusia—PLANT—Andalusia Coca-Cola Bottling Co., c/o Carl B. Cooper, archt., Bell Bldg., Montgomery, soon lets contract 1 story, 167x185 ft. bottling plant. Approx. $60,000.

O., Cleveland — PLANT, etc. — Timmerman Products Inc., 2628 Fulton Rd., soon lets contract 1 stry. brick, block, steel irregular dimensions, mfg. plant addns., office and boiler house. Approx. $500,000. Ernest Mc George & W. R. Harger & Assoc., 7016 Euclid Ave., archts. CD 5/31.

Ore., Redmond — WAREHOUSE — Central Electric Co-operative, Redmond, soon lets contract 6,000 sq. ft. insecticide warehouse. Free-

(Continued on page 109)

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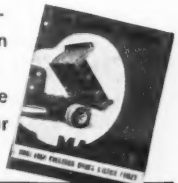

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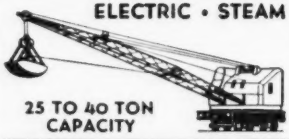

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(Continued from page 107)

masonry warehouse. Freeman & Hayslip, 2040 S.W. 3 St., Portland, archts.

Tex., Austin — PLANT — Von Boeckmann-Jones Co., 110 E. 9 St., soon lets contract printing shop. $120,000. Jessen, Jessen, Millhouse & Greenven, 112 E. 9 St., engr.

Que., Quebec City—PLANT—L. Mainguy, archt., 1045 Chaumont St., soon lets contract 144x218 ft. textile plant, for D. Pike Co., Bingley Yorkshire, England. $200,000. CD 6/30.

LOW BIDDERS

N. Y., New York—PLANT—New York Journal of Commerce, 63 Park Row, Zone 7, project indefinitely deferred publishing plant, 96-103 Worth St. $650,000. CD 2/7.

CONTRACTS AWARDED

Tenn., Memphis—BUS TERMINAL—Dixie Greyhound Bus Lines, c/o contractor, general contract bus terminal, Union at Hernando, to Tri-State Constr. Co., Three Sisters Bldg. Approx. $400,000. CD 7/12, under LB.

Tex., Agua Dulce—GAS COMPRESSOR PLANT—Panhandle Producing & Refining Co., City National Bank Bldg., Houston, gas compressor plant, Owner builds. $650,000.

B. C., Vancouver—WAREHOUSE—Woodward Stores Ltd., 101 W. Hastings St., 1 story, rein.-con. warehouse, Owner builds, $400,000. Awarded 7/8. CD 11/12.

UNCLASSIFIED

BIDS ASKED

July 27

Nebraska—RURAL DISTRIBUTION LINES—Custer County Power Dist., Broken Bow, labor only, 334.7 mi. rural distr. lines, Lincoln, Logan and Custer Counties, $110,000. Raymond H. Reed & Co., Columbus, engr. CD 5/16.

July 28

✦**Arizona**—CONTROL HOUSE, etc.—Bureau Reclamation, Dpt. Interior, Yuma, main control house addn., etc. Imperial dam, All-American Canal Sys., Spec. R3-LCBD-7 (Region 3). L. N. McClellan, Bldg. 1-A, Denver Federal Center, Denver, Colo., ch. engr.

✦**Arizona**—STRUCTURAL STEEL—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., fabricated structural steel for Mesa and Coolidge substations, Davis Dam Proj. Spec. 2728. L. N. McClellan, ch. engr.

✦**Washington**—TRANSFORMERS, etc.—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., power transformer, Horn-Gap Switch, and disconnecting fuses for Quincy Pumping Plant Switchyard, Columbia Basin Proj., Spec. 2696, Extended date. L. N. McClellan, ch. engr. CD 6/8.

July 29

Tex., Lubbock—NATURAL GAS LINES—Modern Manors, Inc. Lubbock, natural gas sys. $50,000. Parkhill, Smith & Cooper, 1006 14 St., engrs.

About July 30

✦**N. M., Albuquerque**—STEAM DISTRIBUTION SYSTEM—U. S. Eng., P. O. Box 1538, AEC steam distr. sys., Serial No. 291-50-4. Extended date. CD 7/7.

August 2

✦**Arizona and Nevada**—STEEL TOWERS, etc.—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Coolidge, Ariz., steel towers, leg extens. and stub angles for Mesa-Coolidge 230-kilovolt transmission line, Davis Dam Proj. Spec. 2730. L. N. McClellan, ch. engr.

LOW BIDDERS

✦**Ala., Huntsville**—FENCE—U. S. Eng., P. O. Box 169, Mobile, Zone 7, June 24, fence around contaminated areas of Huntsville Arsenal, Serial No. Eng-01-076-49-170, from **Chambers Lumber Co., Box 108, Athens, $110,-373.** Est. $160,432. CD 6/15.

Calif., San Francisco—TRANSIT SHEDS—Bd. State Harbor Comrs., Ferry Bldg., July 6, steel frame transit sheds at Mission Rock Terminal, from Leo Epp, Inc., 217 Broderick St., San Francisco, **$387,877.** CD 6/24.

Iowa—RURAL DISTRIBUTION LINES—Woodbury Co. Rural Electric Co-operative, Moville, July 1, 135 mi. rural distr. lines, Woodbury Co., from Hoak Constr. Co., 63 and Ingersoll Ave., Des Moines, **$163,720.** CD 6/22.

Minnesota—RURAL DISTRIBUTION LINES—Border Counties Power Co-operative, N. Clementson, pres., Warroad, June 29, labor and materials, 33 mi. 34½ KV transmission lines, step down substation, from Warroad to Baudette, from 1 ct. Teigen Constr. Co., 1954 University Ave., St. Paul, **$113,865.** CD 5/9.

Missouri—RURAL DISTRIBUTION LINES—Northeast Missouri Electric Power Co-operative, W. G. Mills, mgr., P. O. Box 429, Palmyra, June 30, 125 mi. 69 KV rural distr. lines, 9 substations, etc., Marion Co., from Killoren Electric Co., Appleton, Wis., **$214,-932.** CD 6/15.

Missouri—RURAL DISTRIBUTION LINES—Osage Valley Electric Co-operative Assn., J. F. Lauderback, mgr., Hy. 71 and Fort Scott St., Butler, June 28, labor, 426.4 mi. rural distr. lines, 14.5 mi. conversions, Cass, Bates, Vernon, Henry, Johnson and Pettis Counties, Proj. Missouri 37, **L. & M. Bates,** from The Berger Constr. Co., Higginsville, **$167,887.** CD 6/16.

North Dakota—RURAL DISTRIBUTION LINES—McLean Electric Co-operative, Garrison, June 30, 398 mi. rural distr. lines, McLean Co., from Rue Constr. Co., Fargo, **$417,-409.** CD 6/4.

✦**Wyoming** — TRANSMISSION LINE—Bureau Reclamation, Dpt. Interior, Cody, July 6, Boysen-Thermopolis 115-kilovolt transmission line, Transmission Div., Missouri Basin Proj., Spec. 2693, Schedule 1, using aluminum conductor, from D. J. Killoren, Pine Bluffs, **$162,229.** CD 6/27.

CONTRACTS AWARDED

Ala., Birmingham—CATTLE BARN—Alabama State Fair Auth., c/o contractor, cattle barn at State Fair Grounds, to Joseph H. Fox Co., Empire Bldg., **$100,000.** Bids 6/9.

Ark., Magnolia — STADIUM — Magnolia A. & M. College, Magnolia stadium. Owner builds. Approx. **$100,000.** CD 6/22.

Calif., Vallejo—EXPOSITION BLDG., etc.—Solano Co., Courthouse, Fairfield, exposition bldg., livestock bldg., etc. at County Fairgrounds **$137,146,** to J. A. Bryant, 1806 Capitol Vallejo. **$137,146.** Bids 6/5. CD 6/28.

Illinois—RURAL DISTRIBUTION LINES—Southwestern Electric Co-operative, Greenville, 2.26 mi. rural distr. lines, 11.4 mi. rural power transmission lines, 24.6 mi. tie lines, two-way radio sys., etc., Proj. Illinois 46L, Madison, Madison Co., force account, **$970,-000.** CD 5/27.

✦**Md., Fort George G. Meade**—TANK PARK—U. S. Eng., First and Douglas Sts. N. W., Wash., D. C., tank park incl. bldgs., shops, parking space for tanks, to Smith, DeCorse & Christhilf, 5106 York Rd., Baltimore, **$711,306.** Bids 6/24. CD 7/8.

Missouri—RURAL DISTRIBUTION LINES—Gascosgae Electric Co-operative, Luther A. Riddle, mgr., Dixon, labor 115 mi. rural distr. lines, Miller, Maries, Pulaski and Phelps Counties, Missouri Proj. Mo. 68 C Pulaski, to L. P. & H. Constr. Co., Dixon, **$41,645;** owner furnishes poles and line materials. **$109,000.** Bids 5/25.

Missouri—RURAL DISTRIBUTION LINES—West-Central Electric Co-operative Inc., Samuel R. Greer, mgr., 1902 Main St., Higginsville, 100 mi. rural distr. lines, two-way radio, sys. imprvs., Lafayette, Jackson, Johnson, Pettis and Cass Counties, force account, **$220,000.** CD 6/20.

Nebraska—RURAL DISTRIBUTION LINES—Dawson Co. Public Power Dist., Lexington, 409.7 mi. rural distr. lines, to Tower Constr. Co., 402 Commerce Bldg., Sioux City, Ia., **$461,295.** Bids 6/30. CD 6/8.

Nebraska—RURAL DISTRIBUTION LINES—Southern Nebraska Rural Public Power Dist., Grand Island, labor and part materials, 129.9 mi. rural distr. line, to W. H. Griffin, Spencer, **$126,662.** Bids 6/28. CD 6/14.

●**N. M., Los Alamos**—GAS PIPELINES—U. S. Atomic Energy Comn., Los Alamos, 95 mi. natural gas pipeline, Serial No. Eng. 291-49-122, to Morrison Constr. Co., Austin, Tex., **$1,048,725.** Bids 4/28. CD 5/5, under LB.

North Dakota — RURAL DISTRIBUTION LINES—Mor-Gran Sou Electric Co-operative, Flasher, 249.44 mi. rural distr. lines, Morton Co., to Reither Constr., Inc., Aitkin, Minn., **$243,848.** Bids 6/20. CD 6/13.

Tennessee—RURAL DISTRIBUTION LINES—Duck River Electric Membership Corp., Columbia, 284 mi. rural distr. lines, Maury, Giles, Marshall, Bedford, Franklin and Moore Counties, to Irby Constr. Co., 8158 State St., Jackson, Miss., **$475,094.** Bids 5/18. CD 5/6.

●✦**Wash., Richland**—TRACKS—General Electric Co., Richland, 33,473 track ft. mainline rail, 5,800 track ft. siding rails, rehabilitation 3,070 track ft. existing rails, removal 2.11 mi. existing track, 19,800 track ft. yard track, steel multiple span bridge with timber approach trestle over Yakima River, steel span roadway overpass with concrete abutments and steel girder span with concrete abutments over U.S. Hy. 410 to connect Union Pacific Ry. with Richland, for Atomic Energy Comn., Wash., D. C., to J. A. Terteling & Sons, 4011 Fairview Ave., Boise, Idaho, **$1,060,976.** Bids 6/16, awarded 7/1. CD 7/5, under LB.

British Columbia—RAILWAY EXTENSION—Pacific Great Eastern Ry., C. Spencer, pres., Parliament Bldg., Victoria, clearing and grading 14 mi. section for railway exten., Quesnel to Cottonwood Canyon, to Campbell-Bennett Ltd., 1718 W. 5 Ave., Vancouver, **$634,029.** Awarded 7/5. CD 6/30, under LB.

Que., Mechins—WHARF—Dominion Govt., Hunter Bldg., Ottawa, Ont., wharf construction, to Gulf Maritime Constr. Ltd., Matane, **$448,436.** Bids 6/29. CD 6/15.

PROPOSED PROJECTS

WATER SUPPLY

Ala., Athens—City, WW imprvs. **$281,000.** Polglaze & Basenburg, Empire Bldg., Birmingham, consult. engrs.

Ark., McCrory—City, City Hall, voted **$120,-000** bonds, WW and sewerage sys. imprvs. Dickinson & White, 115 N. Spring St., Little Rock, consult. engrs.

Conn., Simsbury—Village Water Co., John E. Ellsworth, pres., Simsbury, WW sys. imprvs., incl. strengthening and reinforcing watermains, etc., hydrants and mains for

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fire protection. **$120,000.** Metcalf & Eddy, 1300 Statler Bldg., Boston, Mass., engrs.

Ind., Columbus—Bd. P. Wks. & Safety, City Hall, rehabilitation municipal WW sys. Approx. **$300,000.** Henry R. Steeg & Assoc., 129 E. Market St., Indianapolis, consult. engrs. CD 6/30.

Okla., McAlester—Bd. Affairs, Capitol, Oklahoma City, filtration plant and 6 ft. raise of dam at Oklahoma State Penitentiary. **$150,000.** Peyton Smith, c/o owner, engr.

●**Tex., Greenville**—City, Sim Beene, mayor, Greenville, WW and sewer imprvs., incl. paving. **$2,000,000.** Freese & Nichols, 407 Danciger Bldg., Fort Worth, consult. engrs.

SEWERS, WASTE DISPOSAL

Calif., Grass Valley—City, City Hall, voted **$398,000** bonds, sewage treatment plant, and collection sys. Whipple Eng. Co., 205 Hamilton Ave., Palo Alto and Harry N. Jenks, 63 Crescent Dr., Palo Alto, consult. engrs.

Neb., Fremont—City, City Hall, sewers. **$125,000.** Luther Roessler, city engr. CD 2/18.

Ore., Roseburg—City, bond election Aug. 1, sewer lines, treatment plant. **$250,000.** Cornell, Hayes, Howland & Merryfield, Goldie Bldg., Corvallis, consult. engrs. Arthur Boyer, city engr.

Tex., Burnet—City, voted bonds, sanitary sewers. **$100,000.** The Marvin Turner Engineers, Nalle Bldg., Austin, consult. engrs.

BRIDGES

●**Ill., Chicago**—City, City Hall, bascule bridge, removing existing bridge, Van Buren St. **$2,000,000.** Dpt. Bridges & Viaducts, City Hall, engr.

STREETS AND ROADS

●**Ill., Chicago**—City, Oscar E. Hewitt, dir. P. Wks., City Hall, paving Logan Blvd. to Elston Ave., **$250,000;** 57 St. from Damen to Vincennes Ave., **$750,000;** Irving Park Rd. from Pulaski to Ashland Sts., **$750,000;** Morgan St. from Pershing Rd. to 31 St., **$250,000,** 8 St. from Western to Blue Island Aves., **$705,000;** street and alley reconstruction, imprvs. **$2,000,000.** CD 4/25/45.

●**New York**—Dpt. Pub. Wks., Albany.

Westchester Co.—sect. New England Thruway from New York city line through Port Chester, Larchmont and New Rochelle to Connecticut line with Cross County Connection. **$10,818,000.**

Oklahoma—State Hy. Dpt., Oklahoma City.

McCurtain Co.—60 mi. new route for Hy. 59 from Page to Smithville. **$700,000.** S. K. McClelland, c/o owner, engr.

●**Tex., Edinburg**—Hidalgo Co., Courthouse, arterial highway between Harlingen and Mission. **$1,500,000.**

Wash., Seattle—City, County-City Bldg., Zone 4, grading 9 Ave. S.W., **$179,662;** paving 9 Ave. S.W., **$135,794.** R. W. Finke, city engr.

●**Man., Winnipeg**—Municipality, exten. St. Mary to Portage Aves. with n. Cross Town Hy. and by-pass on Rorie St. **$1,000,000.** W. D. Hurst, city engr.

AIRPORTS AND AIRBASES

✠**Philippine Islands, Manila**—AIRPORT IMPRVS.—Republic of the Philippines, Manila, airport imprvs. at Cebu, Lanao and Zamboanga. **$350,000.**

PUBLIC BUILDINGS

●**Conn., Hartford**—SCHOOL—City Bd. Educ., 249 High St., plans by Carl J. Malmfeldt Assoc., 26 Pearl St., 2 story, bsmnt., brick, steel school, Charter Oak Terrace Section. **$1,000,000.**

Conn., New London—HOUSING—City of New London Housing Auth., Richard Pugh, chn., State St., plans by Schoffield & Lindsay, 369 State St., 2 story, frame bldgs., garden apartments, Coleman St. **$750,000.** CD 6/21.

Ga., Atlanta—SCHOOL—Fulton Co. Bd. Educ., Courthouse, plans by Francis M. Daves & Assoc., 57 8 St. N. E., Northside Dr. High School. **$500,000.**

●**Ia., Waterloo**—SCHOOLS—Bd. Educ., plans by M. R. Cleveland, Waterloo, West Senior High School, Kimball St., Approx. **$1,000,000;** Junior High school, Independence Ave., Approx. **$500,000;** Junior High School, Logan Ave., Approx. **$500,000;** plans by Thornson & Thornson, Waterloo, school, Oregon St., Approx. **$300,000;** plans by Dave Toepfer, Waterloo, school, Downing St., Approx. **$300,000.** CD 6/22.

●**Kan., Great Bend**—SCHOOL—Bd. Educ., H. C. Colegrove, clk., Great Bend, plans by Lorentz, Schmidt, McVay & Peadie, 1832 E. 2 St., Wichita, 1 and 2 story brick, concrete high school. **$1,256,700.**

La., Columbia—HIGH SCHOOL—Caldwell Parish School Bd., Columbia, plans by Smith & Padgett, Monroe, Central High School. **$500,000.**

●**Md., Baltimore**—LIBRARIES—Pratt Library, Emerson Greenaway, dir., Cathedral and Franklin Sts., Pimlico Branch, **$250,000;** Hamilton Branch, **$233,000;** Walbrook Branch, **$207,000;** Edmonson Village Branch, **$143,000;** and North Ave. and Penna Ave. Branch, **$293,000.** CD 1/27/44.

Minn., Fergus Falls—BAKERY, etc.—State Dpt. Admin., 19 State Capitol, St. Paul, bakery, kitchen and food service at State Hospital. **$350,000.** Food Service Equip. Engr., 1550 W. Larpenteur Ave., St. Paul, engrs.

Minn., Litchfield — HOSPITAL — Litchfield Community Hospital Assn., R. W. Swanson, city clk., plans by Long & Thorshov, 400 Metropolitan Life Bldg., Minneapolis, hospital. **$500,000.** CD 10/14.

Minn., Mankato—DORMITORY—State, Dpt. Admin., 19 State Capitol, St. Paul, plans by E. H. Schmidt & Co., Mankato, men's dormitory, State Teachers College. **$700,000.**

Miss., Cleveland—PLANT—City, City Hall, voted **$540,000** bonds, mfg. plant.

Mont., Billings—LABORATORY, etc.—State, Helena, 1 story laboratory school and fine arts bldg., for Eastern Montana College of Education. **$600,000.** CD 9/23/46.

Okla., Oklahoma City—HIGH SCHOOL—Bd. Educ., 400 N. Walnut St., plans by Wright & Selby, Hightower Bldg., Southwest Senior High School, 59 and Pennsylvania Sts. **$400,000.** CD 5/2.

Pa., Torrance—NURSES HOME—State Dpt. Welfare, Harrisburg, nurses home at Torrance State Hospital. **$639,000.**

Pa., Warren—CHAPEL, etc.—State Dpt. Welfare, Harrisburg, chapel and recreation hall, at Warren State Hospital. **$629,000.**

Tex., Greenville — LIGHT PLANT — City, municipal electric light plant and sys. imprvs. Approx. **$600,000.** Freese & Nichols, 407 Danciger Bldg., Fort Worth, consult. engrs.

●**Tex., Kingsville**—ADMINISTRATION, etc.—Texas College of Arts & Industries, Kingsville, plans by Eggers & Higgins, consult. archts., 543 Fifth Ave., New York, N. Y., administration and library. **$1,000,000.** Phelps & DeWees & Simmons, 1501 Majestic Bldg., San Antonio, college archts. CD 9/28/44.

Utah, Parowan—SCHOOLS—Iron Co. School Bd., c/o Ianthus Wright, supt., Parowan, voted bonds, schools and school imprvs. **$500,000.**

Wis., Milwaukee—SCHOOL—Bd. Educ., 1111 N. 10 St., Zone 3, Manitoba School, 2nd story 67x263 ft., new 1 story, L-shaped, 145x180 ft. wing for gymnasium and shops. **$600,000.** G. E. Wiley, c/o owner, archt.

N. S., Kentville—SANITORIUM—Province of Nova Scotia, Halifax, plans by L. R. Fairn, 41 Argyle St., Halifax, sanatorium. **$500,000.** CD 3/2/45.

●**Ont., London**—HOSPITAL—Dpt. Veterans Affairs, Ottawa, 5 story wing at Westminster Soldiers Hospital. **$2,500,000.** CD 2/15/46.

●**Que., Sherbrooke**—POST OFFICE—Dpt. P. Wks., J. M. Somerville, secy., Hunter Bldg., Ottawa, Ont., plans by J. W. Gregorie, 86 Wellington St. W., 2 and 3 story, concrete, steel, stone post office, King and St. Edward Sts. Approx. **$1,500,000.** J. D. Ketch & Assoc., 1440 St. Catherine St., Montreal, engrs. CD 10/1.

COMMERCIAL BUILDINGS

Ala., Birmingham—APARTMENT—Sheraton Apartments, c/o Horace Weaver, Swann Bldg., 16 story apartment. Approx. **$500,000.**

Calif., Fresno — HOSPITAL — San Joaquin Valley Childrens Hospital Assn., 6120 Van Ness Blvd., childrens hospital. **$600,000.**

●**Conn., Hartford**—HOUSING—Louis B. Rogow, Fairfield Ave., 115 houses, 30 acre site, Yale St., Hillside and Fairfield Aves. **$1,250,000.**

Conn., Mystic — TELEPHONE — Southern New England Telephone Co., 227 Church St., New Haven, plans by Douglas Orr, 96 Grove St. New Haven, brick, steel telephone bldg. and dial phone exten. **$250,000.**

Fla., Tampa—HOMES—Peter Kaplinski, c/o A. M. Watson & Assoc., archts., 1529 Grand Central Ave., 100 homes. **$600,000.**

Fla., Tampa — APARTMENT — Owner, c/o C. Dale Dykema, archt., 14966 Gulf Blvd., Madeira Beach, 4 apartments. Approx. **$300,000.**

Ga., Cedartown — CHURCH — First Baptist Church, c/o Rothwell & Nash, archts., 206 Roswell St., Marietta, church. **$370,000.**

Ill., Chicago—OFFICE—Chester C. Moore, 29 E. Madison St., plans by Ralph C. Harris, 53 W. Jackson Blvd., 1 story, 110x110 ft. steel, brick office, 327 E. Ohio St. **$510,000.** CD 5/20.

●**Ill., Chicago** — CHURCH — St. Constantine Hellenic Orthodox Church, c/o Rev. Constantine Karkazis, 1848 S. Keduzie St., Zone 23, church, Stony Island Ave. and 74 St. **$2,500,000.** Peter N. Chopuris, 189 W. Madison St., Zone 3, engr.

Ill., Elgin—LODGE—Loyal Order of Moose, Elgin Lodge, 799, 152½ E. Chicago Ave., plans by Toussaint & Robinson, 30 N. LaSalle St., Chicago, 1 story, steel, brick lodge hall. **$250,000.**

Ill., Rockford — HOSPITAL — Rockford Memorial Hospital Assn., 105 Douglas St., plans by Hubbard & Hubbard, 302 N. Main St., and Perkins & Will, 309 W. Jackson St., Chicago, hospital.

Ill., Winnetka — STORE — Charles A. Stevens Co., 25 N. State St., Chicago, Zone 1, modification restaurant to department store, Green Bay Rd. and Linden St. **$300,000.**

Ind., Dyer — HOSPITAL, etc — Mt. Mercy Sanitarium, Lincoln Hy., plans by Bachman & Bertram, 5116 Holman Ave., Hammond, 2 story, bsmnt., steel, brick, stone hospital and sanitarium addn. **$475,000.** CD 4/22.

Ind., Gary—HOUSING—Steel City Village, Inc., 2136 Rhode Island St., thirty-seven 1 and 2 story, masonry, steel bldgs. **$800,000.** Paul I. Cripe, 504 Lemcke Bldg., Indianapolis, consult. engr.

Ind., Indianapolis — COMMERCIAL — T. M. Riddick, 542 S. Meridian St., plans by Edw. Pierre, 925 Architects & Builders Bldg., 2 story, 76x117 ft., masonry, rein.-con. steel commercial bldg., incl. store room, bank, radio station, N. Meridian St. near 19 St. **$250,000.**

Ind., South Bend—CHURCH—Temple Bethel of South Bend, 405 N. Lafayette St., plans by Lorch, Schlossman & Bennett, 353 N. Michigan Ave., Chicago, Ill., 1 story, bsmnt., 128x176 ft. brick, stone, concrete church, Lafayette and Madison Sts., **$250,000.**

Ky., Bardstown—HOSPITAL—Flaget Memorial Hospital, c/o Thomas J. Nolan & Sons, archts., Kentucky Home Life Bldg., Louisville, hospital. **$368,500.**

Ky., Somerset—EDUCATIONAL—First Baptist Church, Somerset, plans by Stratton O. Hammon & Neal O. Hammon, 151 S. 5 St., Louisville, 3 story educational bldg., boiler and heating sys. Approx. **$250,000.**

●**La., Baton Rouge**—SHOPPING CENTER—Douglas Svendsen, c/o Mason-McCann Inc., archt., 8200 Florida St. shopping center. Approx. **$1,000,000.**

La., New Orleans—SCHOOL, etc.—St. Mary of The Angels Parish, Congress and N. Tonti Sts., plans by Jule K. DeLa Vergne, 413 Pere Marquette Bldg., 3 story school and gymnasium. CD 7/10/46.

Minn., Minneapolis—BROTHERS HOME—De La Salle High School, 17 Grove St., Nicollet Island, plans by G. Shifflet, Backstrom & Assoc., 17 W. Franklin Ave., 3 story, part bsmnt. brothers home. **$250,000.**

●**Mo., St. Louis and St. Louis Co.**—HOSPITAL—Jewish Hospital, Major H. Einstein, pres. Bd. Directors, 216 S. Kingshighway Blvd., St. Louis, Zone 10, plans by Jamieson & Spearl, 1696 Arcade Bldg., 812 Oliver St., St. Louis, Zone 1, altering, imprvs. north wing first floor Jewish Hospital, to convert into chronic illnesses div., altering, imprvs. to bldgs. of Jewish Orthodox Old Folks Home, 1438 E. Grand Ave., St. Louis, Zone 7; Rose Bry Miriaum Convalescent Home, 501 Bacon Ave., Webster Groves, St. Louis, Zone 19, and Jewish Sanatorium, Fee Fee Rd., St. Louis, Co., **$3,000,000.**

N. Y., Astoria—CHURCH—Roman Catholic Diocese of Brooklyn, 191 Joralemon St., Brooklyn, Zone 2, plans by H. J. Metlill, 415 Lexington Ave., New York, Zone 17, church, 29 St. and Ditmars Blvd. **$700,000.**

N. Y., Brooklyn — APARTMENT — Samuel Singer, 212 E. 21 St., New York, Zone 10, plans by Albert E. Schaefer, 527 Fifth Ave., New York, Zone 17, 6 story apartment, 36-58 Dahill Rd. **$730,000.**

●**N. Y., Forest Hills** — APARTMENTS — Cord Meyer Development Corp., 108-18 Queens Blvd., plans by G. A. Miller, 67 W. 44 St., New York, Zone 18, apartment, 75 Ave. between 113 St. and Grand Central Parkway **$1,000,000;** apartment, 113 St. south of 72 Rd. **$1,000,000.**

●**N. Y., Rego Park**—HOUSES—Ritadd Realty Corp., c/o Arthur Weiser, archt., 240 Madison Ave., New York, Zone 16, 142 houses at Grand Central Parkway, 62 Dr., 63 Ave., 63 Rd. **$1,207,000.**

●**O., Cincinnati**—OFFICE, etc.—Union Central Life Insurance Co., 3 W. 42 St., plans by Hake & Hake, 2400 Gilbert Ave., 6 story, sub-bsmnt, bsmnt. stone, concrete, brick, steel office and garage annex. **$4,000,000.** The Cincinnati Gas & Electric Co., 4 and Plum Sts., lessee. Harry Barnes, c/o lessee, engr.

O., Cleveland—CHURCH—St. Paul's Episcopal Church, 2747 Fairmont Blvd., plans by Conrad, Hays, Simpson & Ruth, 1110 Hanna Bldg., completing church partially constructed, incl. removing temporary roof and replacing. **$350,000.** CD 6/14/46.

O., Elyria—CHURCH—First Baptist Church, East Ave., plans by J. C. Fulton & Sons, 864 National Bank, Uniontown, 1 story, bsmnt., brick & tile American Colonial style church, belfrey tower. **$260,000.**

Okla., Edmond — HOUSING — O. A. Risner, Edmond, 70 acre housing. **$400,000.**

Okla., Enid—CHURCH AUDITORIUM—University Place Church of Christ, Enid, plans by M. H. Wheeler, 1015 E. Main St., 2 story structural steel, brick, stone church auditorium and educational, concrete fdn. **$260,000.** Carnahan & Thompson, 320 Oklahoma Natl. Bank Bldg., Oklahoma City, consult. engrs. CD 12/27.

●**Tenn., Nashville**—OFFICE—Life & Casualty Insurance Co., 159 4 Ave. N., office. **$2,000,000.** CD 8/24/44.

Tenn., Nashville — OFFICE—Methodist Bd. Educ., c/o Boyd W. Southgate, archt., Nashville Trust Bldg., office. **$600,000.** CD 5/31.

Tex., Galveston—EDUCATIONAL UNIT—St. Marys Infirmary, 715 Market St., masonry educational unit. **$250,000.**

Tex., Houston—CHURCH—Park Place Baptist Church, c/o Rev. J. Stiles, 3827 Broadway, masonry church, 8 acre tract at Broadway and Newborn Sts. **$300,000.**

Tex., San Angelo — HOSPITAL — St. Johns Hospital, San Angelo, hospital addn. **$175,000-$250,000.**

Tex., San Antonio—HOUSING—Lee & Orts, Gunter Bldg., addnl. housing, north side. **$350,000.**

Tex., San Antonio — HOTEL — St. Anthony Hotel, Navarro and Travis Sts., remodeling, repairing lower floors, 1200 room hotel. **$300,000.**

●**Alta., Calgary** — HOTEL — Whitney-Phoenix Co. of Canada Ltd., Cargary, 6 story apartment hotel, 6 Ave. W., **$2,500,000.** Engineer c/o S. V. Claggett, 122 Burns Bldg., Calgary.

●**Ont., Etobicoke**—HOUSING—Home Smith & Co., 35 Old Mill Rd., Toronto, 700 houses, Humber Valley area. Approx. **$5,000,000.**

Que., Montreal — THEATRE — G. W. McGregor, c/o Adelphi, corner 54 St. and 7 Ave., New York, N. Y., U. S. A., theatre, Guy St. **$500,000.**

INDUSTRIAL BUILDINGS

●**Idaho, Pocatello** — REPAIR SHOP — Pacific Fruit Express, Depot, car repair shop and clearing trackage. **$1,400,000.**

Ill., Belvidere — FACTORY — Midwest Bottle Cap Co., c/o Ralph E. Stoetzel, archt., 111 W. Washington St., Chicago, glass, steel, factory. **$120,000.**

Minn., Elk River—WAREHOUSE—Rural Cooperative Power Assn., Milaca, O. N. Gravgaard, pres., Elk River, plans by Long & Thorshov, 400 Metropolitan Life Bldg., Minneapolis, 1 story, 80x120 ft., steel, brick, concrete warehouse. **$100,000.**

Mo., Columbia — WAREHOUSE — Norvell Wholesale Grocery Co., Columbia and Wetterus Grocery Co., Mexico, brick, concrete grocery warehouse. **$300,000.**

Mo., West Plains — HEADQUARTERS — Howell-Oregon Electric Co-operative, Inc., Joe Hinds, mgr., West Plains, administration and headquarters bldg., 14 acre tract near city limits. **$100,000.**

N. Y., Astoria—FACTORY, etc.—I. H. Steinhardt, c/o Irving Kudroff, 103 Park Ave., New York, Zone 17, factory and office, Steinway St. south of 19 Ave., **$140,000.**

N. Y., Long Island City—WAREHOUSE—A. Thypin, 153 Beach 135 St., Belle Harbor, plans by Saul Goldsmith, 80 Livingston St., Brooklyn, Zone 2, warehouse, 30 St. and Hunters Point Ave., **$250,000.**

N. Y., New York — GARAGE — Alstevlen Realty Corp., 1775 Broadway, Zone 19, plans by Horace Ginsbern & Assoc., 205 E 42 St., Zone 17, garage and office bldg. alterations, 400-418 E. 61 St., **$100,000.**

N. Y., New York—FACTORY, etc.—565 Barry St. Co., 565 Barry St., Zone 59, plans by Irving Margon, 12 E. 44 St., Zone 17, factory and office bldg. alterations, 566-71 Barry St. **$135,000.**

N. Y., New York—STORAGE, etc.—Fred F. French Operators, Inc., 551 Fifth Ave., Zone 17, plans by Victor Mayper, 110 W. 40 St., Zone 18, storage and store, 45-59 Henry St. **$100,000.**

N. Y., North Tonawanda—PLANT—International Paper Co., North Tonawanda, plant addn. **$250,000.**

O., Cincinnati — WAREHOUSE — Wirthlin Man Co., 66 Plum St., plans by Wm. Carlton & Assoc., 15 E. 8 St., brick, concrete approx. 23,000 sq. ft. warehouse, office and factory. **$150,000.**

Tex., Fort Worth — SUB-STATION — Texas Electric Service Co., Electric Bldg., reconstruct electric sub-station in Arlington Heights. **$100,000.** CD 2/28/46.

Tex., Tyler—PLANT—Butler Publishing Co., Tyler, 2 story, 90x200 ft., brick, stone printing plant, concrete pier and beam fdn. **$100,000.**

Wis., Green Bay—GARAGE—Olson Transportation Co., Green Bay, plans by H. W. Williams, 516 S. Van Buren St., 1 story, 102x238 ft., steel, concrete block, brick garage, concrete fdn. and floor.

Alta., Edmonton—PLANT—Arctic Ice Co., 70 - 97 Ave., plans by Maitland & Aberdeen, Edmonton, ice mfg. plant, **$150,000.**

Ont., Brantford—FACTORY—Freeborne Co. Ltd., 71 Elgon St., Brantford, factory, **$300,000.**

Ont., Port Burwell—OIL REFINERY—Pennada Oil Refining Co. Ltd., 118 W. King St., Chatham, oil refinery. Approx. **$500,000.** Engineer, c/o Clunis & Kee, 118 W. King St., Chatham.

Ont., Wyoming — GRAIN ELEVATORS — James Milling Co., Wyoming, Roy James, pres., 609 William St., London, rebuilding grain elevators, equip., boiler house, offices.

Que., Arntfield—MILL—New Marlon Gold Mines Ltd., Arntfield, 200-ton mill.

Que., St. Odilon—FACTORY—St. Lawrence Co. Ltd., c/o Marius Lord, archt., St. Odilon, asbestos factory, **$700,000.**

UNCLASSIFIED

California — RURAL DISTRIBUTION LINES — Plumas-Sierra Rural Electric Co-operative, Portola, 17 mi. rural distr. lines, 27 mi. transmission line and sys. imprvs., Plumas Co. **$320,000.**

●**Calif., Fresno**—GAS STORAGE HOLDER—Pacific Gas & Electric Co., 245 Market St., San Francisco, gas storage holder, **$1,500,000.**

Calif., San Mateo—CORPORATION YARD—City, City Hall, plans by Thomas M. Edwards & George Wiemeyer, 704 Market St., San Francisco, corporation yard, **$100,000.**

Fla., Sanford — SHIPPING TERMINAL — City, plans by Smith & Gillespie, engrs. and archts., Roberts Bldg., Jacksonville, 30,000 sq. ft. Inland Waterway shipping terminal with modern loading wharf and hauling facilities on Lake Monroe, **$350,000.**

Georgia—RURAL DISTRIBUTION LINES—Little Ocmulgee Electric Membership Corp., Alamo, 40 mi. rural distr. lines and sys. imprvs., Telfair Co., **$160,000.**

Georgia—RURAL DISTRIBUTION LINES—Okefenoke Rural Electric Membership Corp., Nahunta, 311 mi. rural distr. lines and sys. imprvs., Brantley Co., **$730,000.**

Ill., Centralia — DRIVE - IN THEATRE — Homer Butler, Centralia, and Elbert Butler, Hillsboro, c/o Elbert Butler, Box 146, Hillsboro, drive-in theatre, etc. Approx. **$125,000.**

Ind., Columbus — DRIVE-IN THEATRE — Syndicate Theatres Inc., Joseph P. Finneran, pres., Artcraft Theatre, Franklin, drive-in theatre, west side of Alternate Rt. 31, short distance south of Rd. 31 over-pass, on 24 acre tract 2 mi. north of city limits. Approx. **$100,000.**

Ind., Greencastle—DRIVE-IN THEATRE—G. E. Ogles & Walter S. Campbell, Greencastle, drive-in theatre, on 20 acre site, fronting 200 ft. U. S. 40 and 150 ft. on U. S. 43, near here. Approx. **$100,000.**

Ind., Wabash—DRIVE-IN THEATRE—Syndicate Theatres, Inc., J. P. Finneran, pres., Artcraft Theatre, Franklin, WWNI drive-in theatre, on 53 acre site Old State Rd. 15, 4 mi. south of city limits. Approx. **$100,000.**

Minnesota — RURAL DISTRIBUTION LINES — Southwestern Minnesota Electric Co-operative, Pipestone, 110 mi. rural distr. lines, sys. imprvs., office and warehouse facilities, Pipestone Co. **$450,000.**

Minnesota—RURAL DISTRIBUTION LINES—Todd-Wadena Power & Light Co-operative Assn., Wadena, 178 mi. rural distr. lines, Todd Co. **$178,000.** A. J. Christopherson, 941 W. Cavour Ave., Fergus Falls, engr.

Missouri—DRIVE-IN THEATRE—Harry E. Miller, William Collins & Tilden Dickson, c/o Harry E. Miller, Miller Theatre, Festus, drive-in theatre, between Festus and Crystal City. Approx. **$100,000.**

Nebraska—RURAL DISTRIBUTION LINES—Consumers Public Power Dist., 1452 25 Ave., Columbus, rural distr. lines from O'Neill to Ainsworth. **$325,000.** R. L. Schacht, c/o owner, ch. engr.

Nebraska—RURAL DISTRIBUTION LINES—Norris Rural Public Power Dist., Beatrice, 175 mi. rural distr. lines, Lancaster, Gage, Saline and Jefferson Counties. **$371,000.** Brown Eng. Co., 322 K. P. Bldg., Des Moines, Ia., engrs. for Lancaster and Gage Counties. P. L. Burns, 630 Davenport Bank Bldg., Davenport, Ia., engr. for Saline and Jefferson Counties. CD 10/2/47.

●**New York**—GAS MAIN—Consolidated Edison Co., 4 Irving Pl., New York, Zone 3, 3½ mi. natural gas main along Astoria and Northern Blvds. from 49 St. to Flushing Creek, **$1,100,000.**

N. Y., Bayside—PLAYGROUNDS, etc.—Dpt. Parks, Arsenal Bldg., New York, plans by G. Chirlian, c/o owner, playgrounds and comfort station, 56 Ave. between 201 and 202 Sts., **$150,000.**

North Dakota — RURAL DISTRIBUTION LINES—Slope Electric Co-operative, New England, 705 mi. rural distr. lines, previously approved constr. and sys. imprvs., Slope Co., **$705,000.** Ulteig Eng. Corp., 1114½ Front St., Fargo, consult. engrs. CD 7/1.

O., Canton — FIELD HOUSE — Canton Bd. Educ., Canton, 1 or 2 story brick field house, **$350,000.** Osborne Eng. Co., 7016 Euclid Ave., Cleveland, consult. engr. CD 11/29/45.

Ore., Portland—RAILROAD TRACK—Portland Dock Comn., Terminal No. 4, railroad track extens., **$100,000.**

Pa., Mayview—COAL CONVEYOR, etc.—State Welfare Dpt., Harrisburg, coal conveyor and bunker at Mayview State Hospital, **$230,000.**

Pa., West Chester—SWIMMING POOL, etc.—Dpt., Public Instruction, Wm. Penn High School Bldg., Harrisburg, swimming pool and gymnasium alterations at West Chester State Teachers College, **$667,889.**

Wash., Seattle—ZOO IMPRVS.—Park Bd., Denny Way and Dexter Ave., plans by Claude Bradley, c/o owner, 1 story rein.-con. bear grotto, **$250,000;** plans by A. V. Peterson, c/o owner, 1 story, 39x138 ft., rein.-con. feline house, **$250,000.** CD 4/9/45—ENR 4/19/45.

Wyoming—RURAL DISTRIBUTION LINES, etc.—Hot Springs County Rural Electric Assn., Thermopolis, 60 mi. rural distr. lines, 4 mi. transmission lines, two-way radio, completing previously approved constr., **$325,000.** H. S. Nixon & Co., W.O.W. Building., Omaha, Neb., consult. engrs. CD 7/5.

Ont., Ottawa — CURLING CLUB — Rideau Curling Club, 227 Laurier Ave. W., Ottawa, plans by James Adams, 48 Spark St., curling club, **$100,000.**

Proposal Advertisements see pp. 111 to 113

OFFICIAL PROPOSALS

OFFICIAL PROPOSALS

Bids: August 8, 1949 (260)

Heating Plant for Building No. 5 Port Newark

CONTRACT PN-9

Sealed proposals for furnishing and installing a heating plant for Building No. 5 at Port Newark will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Ave., New York 11, N. Y., until 11:30 A.M. Monday, August 8, 1949, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Chief Engineer and copies will be furnished upon deposit of $10.00 per set. The deposit will be remitted if the documents are returned in good condition, not later than thirty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman.

Bids: August 8, 1949 (261)

Foundation for Ventilation Building

THE PORT OF NEW YORK AUTHORITY
GEORGE WASHINGTON BRIDGE
WEST 179TH STREET TUNNEL
CONTRACT GWB-9

Sealed proposals for the construction of the foundation for the Ventilation Building for the West 179th Street Tunnel, New York City, will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Ave., New York 11, N. Y., until 2:00 P.M. Monday, August 8, 1949, and thereafter in the Auditorium of the Authority at the same address until 2:30 P.M., on the same date, at which latter time and place said proposals will be publicly opened and read.

Contract documents may be seen at the office of the Chief Engineer and copies will be furnished upon deposit of $25.00 per set. The deposit will be remitted if the documents are returned in good condition, not later than thirty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman.

U. S. Government

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. 2729) will be received by Bureau of Reclamation, Casper, Wyoming, August 16, 1949, and then publicly opened for furnishing labor and materials and performing all work for the construction of Gering Substation Additions, Transmission Division, Nebraska, Missouri River Basin Project. The work is situated near the northern city limits of Gering, Nebraska. Principal items are approximately: 3,600 cu.yds. of excavation; erection of 110 tons of structural steel; installation of transformers, circuit breakers, switches, and power circuits; and other work. Time allowed for completion will be 210 days. For particulars, address Bureau of Reclamation, Casper, Wyoming; or Building I-A, Denver Federal Center, Denver, Colorado.

MICHAEL W. STRAUS,
Commissioner.
(256)

Office of the District Engineer, Corps of Engineers, U. S. Army, 1217 U. S. Post Office and Custom House, St. Paul 1, Minnesota.—Sealed bids, in duplicate, for furnishing all labor and materials and performing all work required for Bank Protection at Landward Lock, Lock and Dam No. 2, Mississippi River, Hastings, Minnesota, will be received in this office until 11:00 A.M., C.S.T., August 3, 1949, and then publicly opened. Further information upon application. (252)

(Continued on page 112)

OFFICIAL PROPOSALS
(Continued from page 111)

Bids: August 3, 1949 (251)

State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Chapter 63, Laws of 1936, as amended, and special provisions for projects financed with federal aid funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time on August 3, 1949 by Henry A. Cohen, Director, Bureau of Contracts & Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects: Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts & Accounts, Albany, N. Y., and at the office of the District Engineers noted below, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for plans and proposal forms for each contract containing 1 to 15 sheets is $5.00; 16 to 30 sheets, $10.00; over 30 sheets, $20.00. A refund will be made in full to bidders for the return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by cash, draft or certified check payable to the order of "State of New York, Commissioner of Taxation & Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders".

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

R. D. TALLAMY
SUPT. OF PUBLIC WORKS

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
		DISTRICT No. 2				
		L. KETCHUM, Dist. Engr., 109 No. Genesee St., Utica, N. Y.				
Montgomery	RC 49-80	Br. No. 1 Fultonville Village: Fonda Village., S. H. 864 Br. No. 1 Fort Plain Village: River St., S. H. 1903 Br. No. 1 Canajoharie-Palatine Bridge S. H. 8527-8528		Painting Brs.	$1,100 Plans $5	$20,000
		DISTRICT No. 3				
		WM. ROBINSON, Dist. Engr., Weigh Lock Bldg., Syracuse, N. Y.				
Wayne	FASS 49-19	Walworth-Marion Co. Rd. Proj. S-322(1)	4.38	Bit. Mac. Opt., Rd. Mix	$20,000 Plans $10	$349,000
Wayne & Seneca	RC 49-82	Seneca Falls Vill., S. H. 5100 Geneva-Waterloo, S. H. 5087A Newark-Lyons, S. H. 8028		Painting Brs.	$400 Plans $5	$15,000
		DISTRICT No. 5				
		C. R. WATERS, Dist. Engr., 65 Court St., Buffalo, N. Y.				
Erie	FAC 49-5	Tacoma Ave. to Kenmore & Ave., Delaware Ave., City of Buffalo Proj. U1078(6)	0.40	Asp. Conc. Opt. = 0.36 mi. Misc. Work = 0.04 mi.	$13,000 Plans $5	$239,000
Erie	FASS 49-15	East Church St., Co. Rd. No. 488, Proj. S248(1)	0.38	Asp. Conc. Opt. = 0.32 mi. Misc. Work = 0.06 mi. 3 Sp. I-Beam App. Spans 28', 36' & 40' & Steel Arch 144' c-c Bearings	$12,000 Plans $5	$204,000
Niagara	FASS 49-24	Griswold St., Co. Rd. 905-A, Project S753(2)	5.06	Asph. Conc. Opt. = 5.05 mi. Misc. Work = 0.01 mi.	$14,000 Plans $5	$246,000
		DISTRICT No. 6				
		H. F. BRUMM, Dist. Engr., State Office Bldg., Hornell, N. Y.				
Chemung	RC 49-79	Elmira-Lowman, S. H. 5207 Lowman-Waverly, Pt. 1, S. H. 5048	6.92	Erosion Control	$450 Plans $5	$8,000
Chemung & Tioga	RC 49-81	Southport, Pt. 2, S. H. 28 Waverly-Owego, Pt. 3, S. H. 5257 Owego-Candor, Pt. 2, S. H. 5471		Painting Bridges	$500 Plans $5	$10,000
Steuben	FASS 49-21	Presho-Lumber City, Co. Rd. 73, Proj. S259(1)	0.40	Asp. Conc. Opt. 4 Sp. Alpha I-Beam 2 at 97½" and 2 at 98" Alpha $277.27	$20,000 Plans $5	$355,000
		DISTRICT No. 7				
		R. F. HALL, Dist. Engr., 444 Van Duzee St., Watertown, N. Y.				
Clinton	FASS 49-18	Old Military Turnpike Co. Rd., Proj. S167(3)	5.71	Triple Surf. Treat. Gravel Alpha I-Beam 84' Span I-Beam 34' 6" Span Alpha $63.00	$33,000 Plans $20	$620,000
		DISTRICT No. 8				
		J. S. BIXBY, Dist. Engr., Pleasant Valley Rd., Poughkeepsie, N. Y.				
Orange	FGRC 49-87 RC 49-88	Sep. of Grades of the Erie R. R. with Middletown-Montgomery, S. H. 499, Proj. FG621(3)	0.60	8" Cem. Conc. Pavt. 24' Wide Alpha. I-Bm. 3 Sp. 52'6" Each Alpha $224.00	$12,000 Plans $5	$225,000
Rockland	PIP 49-1	Palisades Interstate Parkway, Pt. 1, PIP 47-1 (Mt. Ivy-Gate Hill Rd.)	1.72	Roadside Development	$1,000 Plans $5	$18,000
Orange Rockland Ulster	RC 49-83	S. H. 42 Br. No. 3; S. H. 499 Br. No. 5; S. H. 1539, Br. No. 1; S. H. 5480, Br. No. B-1 & B-2; S. H. 8300, Br. No. 2; S. H. 680, Br. No. 1; S. H. 5388, Br. No. B-2; S. H. 5714, BR. No. 1; S. H. 8049-A, Br. No. 1; S. H. 141, Brs. No. 1 & 2; S. H. 229, Br. No. 3; S. H. 419, Br. No. 1; S. H. 1419, Br. No. 3; S. H. 5599-C, Br. 1; S. H. 5601, Br. No. B-1 & S. H. 8398, Br. No. 1		Painting Bridges	$4,500 Plans $5	$82,000
		DISTRICT No. 9				
		F. W. DONOVAN, Dist. Engr., 71 Frederick St., Binghamton, N. Y.				
Otsego	RC 49-86	Repair to Gr. Sep. Struct. on Unadilla-Wells Br., S. H. 5229	0.05	Repairs on a 112' Span Truss Bridge with 176' Conc. App. Spans	$3,500 Plans $5	$63,500
Broome Delaware Schoharie Sullivan	RC 49-89	Br. No. 1, S. H. 5338; Br. No. 1, S. H. 1241, Br. No. 1, S. H. 5412, Br. No. 1, S. H. 375, Br. No. 1, S. H. 8254; Br. No. 1, S. H. 5383, Br. No. 1, S. H. 5671; Br. No. 1, S. H. 8187; Br. No. 1, S. H. 5458; Br. No. 1, S. H. 5286; Br. No. 1 S. H. 5195, Br. No. 3 S. H. 5234; Br. No. 1, S. H. 8449; Br. No. 1, S. H. 8494		Painting Brdges	$4,000 Plans $5	$73,000
		DISTRICT No 10				
		J. J. DARCY, Dist. Engr., Montauk Hwy at Little E. Neck Rd., Babylon, L. I., N. Y.				
Bronx	FAMDE 49-3	Major Deegan Expressway Cont. 5AA (167th St. to Depot Place), Proj. U1082(7)	0.17	Demolition, Grading, Drainage & Ret. Wall	$30,000 Plans $10	$550,000
Nassau	RC 49-84	Hempstead-Farmingdale, Pt. 3, S. H. 9055 Hempstead-Farmingdale, Pt. 4, S. H. 9064	8.15	Roadside Development	$450 Plans $5	$8,000
Suffolk		Riverhead: Edwards & Pier Ave.		Beach Protection: 6 Stone Jetties	Dep. 5% of Bid Plans $5	$42,400

OFFICIAL PROPOSALS

Bids: August 15, 1949 (258)

Refuse Incinerator Plant

FOR THE
VILLAGE OF PORT CHESTER,
WESTCHESTER COUNTY, NEW YORK

Sealed bids in opaque envelopes for Contract No. 1, covering the construction of a new Refuse Incinerator plant; and Contracts No. 2, 3 and 4, covering the Heating, Plumbing and Electrical Systems, respectively, will be received by the Village Clerk at a meeting of the Board of Trustees, to be held in the Court Room in the Police Headquarters Building, 350 North Main Street, Port Chester, Westchester County, New York, until eight (8) o'clock P.M., Eastern Standard Time, August 15, 1949, and then at said place, publicly opened and read aloud.

The Information for bidders, Form of Bid, Form of Contract, Plans, Specifications, and Form of Performance Bond may be examined at the office of the Village Clerk, 116 Willett Avenue, Port Chester, New York, and copies thereof may be obtained upon payment of Fifteen ($15.00) Dollars for each set. Any bidder, upon returning such set promptly and in good condition, will be refunded his payment, and any non-bidder upon so returning such set within ten (10) days after the date for the receipt of bids, will be refunded Five ($5.00) Dollars. Checks given as deposit on plans and specifications shall be made payable to the Village of Port Chester.

In general, the work included in Contract No. 1 consists of the construction of a new refuse incinerator plant of 120 tons per day capacity, complete with earth ramp, grading and the demolition of the existing plant; all of which shall be performed with a minimum of interference with the operation of the existing incinerator plant during construction. The heating, plumbing and electrical installations are to be executed under Contracts 2, 3 and 4, respectively.

Each bidder must deposit with his bid, but not enclosed in the envelope containing his bid, an amount of not less than five per cent (5%) of the base bid in the form of cash or a certified check (Bid bonds will not be acceptable) subject to the conditions provided in the Information for Bidders.

The Village of Port Chester, Westchester County, New York, reserves the right to reject any or all bids, waive any informalities, or to accept that bid, acceptance of which will, in the judgment of the Board of Trustees of the Village, best secure the public interest and efficient work.

No bidder may withdraw his bid within Forty-five (45) days after the date of opening thereof.

DANIEL A. O'CONNELL,
Village of Portchester, N. Y.

Bids: July 29, 1949 (255)

Bridge Construction

NOTICE: The Board of County Commissioners, of Liberty County, Montana will receive sealed bids up to 11 A. M. Friday the 29th day of July, 1949, at Chester, Montana, for the construction of a Highway Bridge across the Milk River, near the Pugsley Ranch. Plans and specifications are for a three hinged, braced chain suspension bridge of 290 foot span.

Plans and specifications are now on file with the County Clerk of Liberty County, Chester, Montana and with R. T. Hurdle and Sons, Civil Engineers, Box 914, Billings, Montana, where copies may be obtained upon furnishing a deposit of ten dollars for each set.

Signed, John W. Hutchison,
County Clerk,
Liberty County, Chester, Montana

(Additional Proposals on page 113)

OFFICIAL PROPOSALS
(Continued from page 112)

Bids: August 5, 1949 (253)

Denver Municipal Stadium

Sealed bids will be received by the Manager, Improvements and Parks of the City and County of Denver in the State of Colorado in the Council Chamber Room 450, City and County Building, West Colfax Avenue and Bannock Street, until 2:00 o'clock P. M. (Mountain Standard Time) of Friday, August 5, 1949 for the construction of a building to be known as THE DENVER MUNICIPAL STADIUM, at which time and place the bids will be publicly opened and read aloud. The proposed building will be located at 14th Street and 46th Avenue, Denver, Colorado. All bids must be made on the Bid Form furnished with the Contract Documents. Bids received after closing time will be returned unopened.

Plans and Specifications and other proposed Contract Documents are on file at the following offices:

Office of Roland L. Linder, Architect, 507 Insurance Building, Denver, Colorado.

Offices of Roberts and Schaefer Company, Lorimer and Rose, Associated Engineers and Architects, 130 North Wells Street, Chicago 6, Illinois and 254 West 54th Street, New York 19, New York.

Separate bids will be taken for each of the following proposed Contracts; in addition, a combined bid will be taken for proposed Contracts Nos. 2 and 3:

Contract No. 1. General Construction Work.

Contract No. 2. Heating, Ventilating and Air Conditioning.

Contract No. 3. Plumbing and Fire Protection.

Contract No. 4. Electrical Power and Lighting.

Contract No. 5. Ice Rink, Complete, Including Refrigeration and Ice Rink Floor Construction.

Contract No. 6. Wells and Pumping Equipment.

A set of Plans and Specifications and other Contract Documents may be obtained from the office of Roland L. Linder, Architect, 507 Insurance Building, Denver, Colorado. A set of Contract Documents covering Contract No. 1 will be furnished upon deposit of One Hundred Dollars ($100.00) per set; and for other Contracts upon deposit of Fifty Dollars ($50.00) per set. Deposits will be refunded to bidders upon return of Documents in good condition within ten days after receipt of bids. Additional sets which contractors may obtain for the cost of reproduction must be returned within the same time limit without refund. All Documents remain the property of the Engineers and Architects and must be returned within ten days after the receipt of bids.

The character and amount of security to be furnished by each bidder are stated in the Information for Bidders in the above-mentioned Contract Documents. Any bid bond shall be countersigned by a resident agent residing in Colorado. No bid may be withdrawn for at least thirty days after the scheduled closing time for the receipt of bids.

Preference is hereby given to materials, supplies and provisions, produced, manufactured or grown in Colorado, the quality being equal to articles offered by competitors outside of the State.

The City and County of Denver, Colorado reserves the right to reject any or all bids and to waive formalities as its best interests may appear.

FOR THE CITY AND COUNTY OF DENVER
By T. P. Campbell
Manager, Improvements and Parks

Bids: September 1, 1949 (259)

Bridge Construction

COMMONWEALTH OF VIRGINIA, DEPARTMENT OF HIGHWAYS, RICHMOND, VIRGINIA, JULY 14, 1949. Sealed Bids will be received at the Department of Highways, Room 400, Central Highway Office Building, 1221 E. Broad Street, Richmond, Virginia, until 10:A.M., Eastern Standard Time, September 1, 1949, for the construction of:

ROUTE: 17
STATE PROJECT: 2036-01-02 (Old 1297-AB1) (2099)
COUNTY: York and Gloucester
LENGTH & TYPE: 3,750' Series of Girder, Truss and Movable Swing Spans. All of Deck Type Construction

OFFICIAL PROPOSALS

LOCATION: Over York River at Yorktown, Virginia Between Yorktown and Gloucester Point
CONTRACTORS WILL BE SHOWN OVER THE WORK: 10:A.M., August 1, 1949
COST OF PLANS COMPLETE: $20.00—No refund
SUBSTRUCTURE PLANS ONLY: $10.00—No Refund

ITEMS & APPROXIMATE UNIT QUANTITIES

SUBSTRUCTURE (CONTRACT NO. 1)	
Cu. Yds. Excavation:	53,000
Cu. Yds. Embankment:	73,000
Lin. Ft. Timber Piles:	15,200
Lin. Ft. Concrete Piles:	3,000
Cu. Yds. Concrete:	47,550
Lbs. Reinf. Steel:	2,445,000
Lbs. Steel Sheet Piling:	460,000
Lbs. Structural Steel:	10,175,000
M.B.M. Lumber:	8
SUPERSTRUCTURE (CONTRACT NO. 2)	
Cu. Yds. Concrete:	2,300
Lbs. Reinf. Steel:	460,000
Lbs. Structural Steel:	10,650,000
Sq. Ft. Steel Grid Flooring:	25,500
Lbs. Operating Machinery:	326,000
Electrical Work:	Lighting and Miscellaneous Items

DISTRICT OFFICE: Suffolk

Plans and specifications are on file at the Richmond Office; Local District Office, and at the office of Parsons, Brinckerhoff, Hall & McDonald, Engineers, 51 Broadway, New York 6, New York.

Bidding proposals will be furnished upon request to contractors who have prequalified and furnished the Virginia Department of Highways with a statement detailing his experience and qualifications for constructing bridge piers in deep water by the open caisson method. Prequalification forms will be furnished upon request.

Proposal guaranty shall be certified check or bid bond in the amount shown in schedule on back of proposal form. Bid Bond shall be on form furnished by the Virginia Department of Highways.

The Commission reserves the right to reject any or all bids.

PLANS WILL NOT BE MAILED PRIOR TO RECEIPT OF PAYMENT OF COST SHOWN IN THIS ADVERTISEMENT.

Bids: August 1, 1949 (257)

State Road Work

Bids August 1, 1949, county road work, Broome County Highway Department, Binghamton, New York.

Pursuant to the provisions of Article 6, section 126 of the Highway Law, sealed proposals will be received by the county superintendent of highway at the Broome county highway office, county office building, Binghamton, New York until eleven o'clock eastern day light saving time on Monday, August 1, 1949 for the construction of the following:

New Ireland-Airport County Road No. 71, Part 2, Project No. 91, 2.29 miles, 44' width of roadway estimate $210,000.00, deposit required $12,000, minimum wage rate per hour for above work shall be as follows: Labor, $1.50.

Maps, plans, specifications, estimates and proposal forms may be seen at the office of the County Superintendent of Highways at Binghamton, New York. Copies of plans and proposals may be obtained upon deposit of $5.00 for each set, with check payable to the Broome County Highway Department.

Special attention of bidders is called to General Information for bidders in the proposals, specifications and contract agreement. Contract proposals must be submitted in a sealed envelope with the name and number of the project plainly endorsed on the outside of the envelope.

Each proposal must be accompanied by cash, draft, or a certified check payable to the County Treasurer of the County of Broome for the sum as specified in this advertisement.

The retention and disposal of such cash, draft or check by the County of Broome shall conform with Subdivision 2, Section 38 of the Highway Law as amended. The successful bidder will be required to execute the contract and comply in all respects with Section 38 of the Highway Law as amended. The right is reserved to reject any or all bids.

Bids: August 11, 1949 (254)

Sewage Pumps, Etc.

COMMONWEALTH OF MASSACHUSETTS
METROPOLITAN DISTRICT COMMISSION

Sealed proposals will be received at the office of the Metropolitan District Commission, 20 Somerset Street, Boston, Massachusetts, until 1:00 P.M., Eastern Daylight Saving Time, August 11, 1949, and then publicly opened, for Contract No. 156 for furnishing and delivering sewage pumps and mechanically cleaned bar screens for the Alewife Brook Pumping Station located in the City of Somerville, Massachusetts. There are three groups of items which may be awarded as a whole or as separate contracts, but no single group will be further subdivided and awarded to more than one bidder. Each bidder shall deposit cash or certified check for security in the amount of $1500 for Group A, $300 for Group B and $300 for Group C. A bond in at least the full amount of the contract will be required of each successful bidder to secure the faithful performance of the contract, and for the payment of all persons performing labor or furnishing materials in connection therewith. The information for bidders, forms of proposals, contract, and performance bond, and plans and specifications may be examined at the above address and copies thereof obtained from Karl R. Kennison, Chief Engineer of the Construction Division, upon deposit of $5, to be refunded only to bidders or to others returning them within ten days after the opening of bids. The Commission reserves the right to waive any informality in, or to reject, any or all proposals. No bidder may withdraw his bid within thirty days after the actual date of the opening thereof.

WILLIAM T. MORRISSEY,
Commissioner

Bids: July 28, 1949 (250)

Waterworks

Sealed Bids will be received by the City Clerk of Willimantic, Connecticut at the offices of the City Clerk, Room 5, City Hall until 1:00 Eastern Standard Time, July 28, 1949, for the construction of Contract No. 2 of Additional Facilities to Existing Waterworks comprising the Water Distribution Mains for the City of Willimantic, Connecticut, at which time they will be publicly opened and read.

Each bid shall be in accordance with the requirements of the Contract Documents which are available for examination or purchase at the offices of the City Clerk, Willimantic, Connecticut or of Gibbs & Hill, Inc., Consulting Engineers, Pennsylvania Station, New York 1, New York. Copies may be purchased upon deposit of $20.00 per set, which deposit will be refunded to each actual bidder, and one-half of the deposit to non-bidders, upon return of such copies in good condition within 5 days after the bids are opened.

The City reserves the right to reject any or all bids and to waive any informality in bids received.

Dated at Willimantic, Connecticut, this 9th day of July, 1949.

Roger F. Paulhus
City Clerk

Bids: August 29, 1949 (247)

Refuse Incinerator

CITY OF LAWRENCE
MASSACHUSETTS

Sealed bids for constructing a refuse incinerator will be received at the Office of the City Clerk, City Hall, Common Street, Lawrence, Massachusetts, until 9:30 o'clock A. M., Eastern Daylight Saving Time, on Monday, August 29th, 1949 and will be publicly opened and read aloud at a meeting of the City Council to be held immediately thereafter.

Drawings and contract documents may be examined and obtained at the above office, at the office of Ashton, Huntress & Pratt, 477 Essex Street, Lawrence, Mass. and at the office of Metcalf and Eddy, 1300 Statler Bldg., Boston, Mass. A deposit of $25.00 will be required for each set of drawings and documents.

As Bid security a certified check or bid bond in the amount of $25,000.00 must be furnished. The successful bidder must furnish a performance bond in the amount of not less than 100% of the contract pice.

Requirements should be noted as to conditions of employment, wage rates and filing of sub-bids.

CITY OF LAWRENCE, MASSACHUSETTS
By Gordon E. Gaffney
City Clerk

WANTED

BRIDGE DESIGNERS

Minimum 5 years bridge design experience desired. Recent graduates considered. Long term to permanent employment. Vocation plan and insurance. Send complete resume stating experience, education, salary requirements and date available.

Box 5073, Pittsburgh (6), Pa.

WANTED: RIGGER BOSS

High Dam—Cableway—Maintenance—Operation

At least two (2) years experience actual cableway handling in responsible charge—handle very heavy loads—equipment—good salary—eighteen (18) months minimum duration—South—send reference, including salary required—complete story and telephone number to:

P-9432, Engineering News-Record
330 W. 42nd Street, New York 18, N. Y.

WANTED

Architects, engineers, landscape architects. Only high type men wanted. Good salaries, permanent places.

JOHN LEON HOFFMAN, Inc.
Forsyth, Georgia

"Manufacturer of steel joists interested in capable sales engineer to manage department. Give full experience, photograph of self. Contents will be confidential."

P-9446, Engineering News-Record
330 W. 42nd Street, New York 18, N. Y.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (18)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

WANTED—ENGINEERS, Architects, Draftsmen experienced in the design of sewers, sewage treatment plants, water treatment plants and industrial buildings. Also engineers to supervise construction. State qualifications, experience. Salary requirements and date available. P-1155, Engineering News-Record.

WANTED: THOROUGHLY experienced estimator for building contractor specializing in public works. Stanley W. Newman Co., Inc., Mobile, Ala.

FOR CENTRAL & Northern New York State: Bricklayer Foreman capable of handling brick and stone work on large project, ready to start in four to six weeks. Answer in own handwriting stating age, background, character and experience, references, and following, if any. P-9188, Engineering News-Record.

DRAFTSMAN: STRUCTURAL steel fabricator in Baltimore area desires services of thoroughly experienced man for detailing and checking. Excellent position for properly qualified man. Please give experience in detail and salary expected. P-9383, Engineering News-Record.

ENGINEERS: FOR Professorships all engr. fields. Master's and Doctor's qualify unusually fine positions. $4500-7000 nine months. Instructors, bachelors. Give phone, photo, qualifications. Clinic Teachers Agency, East Lansing, Mich.

ESTIMATOR-FOR General Contractor or industrial, institutional, and commercial work. Graduate Engineer. Prefer man having purchasing, follow-up, and field experience. Excellent opportunity. Immediate opening. Location Northern Michigan. Apply to P-9298, Engineering News-Record giving full particulars as to experience, education, age, and names of previous employers. (Our employees know of this ad).

WANTED CONSTRUCTION Superintendent for NYC Public School Extension ($500,-600.00), thoroughly experienced. Send references and state age and salary in first letter. P-9258, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT and Estimator. Commercial and public building work. Apply Kuhn Construction Company, General Building Contractors, Charleston, W. Va.

DESIGNERS
HIGHWAY and BRIDGE

Excellent opportunities for immediate permanent employment with a progressive organization. Experience essential in responsible engineering design for express highway and/or various types of bridge structures in connection therewith. Ample opportunities for advancement.

Desirable working conditions at salary commensurate with ability. Write for application blank. All replies will be held confidential and *will be promptly acknowledged.*

CAPITOL ENGINEERING CORPORATION
DILLSBURG, YORK COUNTY **PENNSYLVANIA**

SALARIED POSITIONS $3,500—$35,000

If you are considering a new connection communicate with the undersigned. We offer the original personal employment service (39 years recognized standing and reputation). The procedure, of highest ethical standards, is individualized to your personal requirements and develops overtures without initiative on your part. Your identity covered and present position protected. Send only name and address for details.

R. W. BIXBY, Inc., 272 Dun Bldg., Buffalo 2, N.Y.

WANTED—ARCHITECTURAL or structural engineer. Experience not required but preferred. First letter state age, experience, references and salary required. P-9419, Engineering News-Record.

WANTED THOROUGHLY experienced Estimator for well established general building contractor's office. Location—Central Indiana. State education, experience, age, salary desired and when available. P-9425, Engineering News-Record.

WANTED CIVIL engineering graduate (age 23 to 30) with two or three years experience in Water Works and Sewerage Design for permanent position in the Department of Public Works of the City of Salisbury, Maryland. Please submit qualifications, references, and photograph, and state salary desired. Address all communications in writing to Clarke Gardner, City Engineer, City Hall, Salisbury, Maryland.

POSITIONS WANTED

CONSTRUCTION SUPERINTENDENT — 27 years experience in complete charge of projects consisting of: chemical plants, slip-form concrete structures, material handling and process equipment installations, grain elevators and dryers; cement plants. Under fifty years of age. Will go any location. Further details on interview. PW-8914, Engineering News-Record.

ENGINEER (GRADUATE electrical-mechanical) 30 years in all branches, field and office. Consultant, supervisor, liaison on large construction projects handling utilities and building construction of communities efficiently. Also survey and reports on Foreign Nations power and industrial exploitation. Anywhere home or abroad. Physically perfect. Age 54 years. Min. 900 and up in accordance with location. Highest references possible. Present contract expires September. J. Slingerland, Pleasantville, New York. Phone 2395.

GENERAL OR Job Superintendent. 20 years experience in supervision, estimating, purchasing, and expediting, on all types of Federal Industrial, Commercial and Institutional Construction. Available July 8th. PW-9313, Engineering News-Record.

ENGINEER REGISTERED ten years experience heavy construction as estimator, superintendent, manager desires connection domestic or overseas. PW-9410, Engineering News-Record.

CONSTRUCTION ENGINEER: College trained C.E. with 5 yrs. of progressive responsibility in highway, indust., waterways & Public bldgs. Desires permanent connection with contractor. Salary $4500. Go anywhere, prefer west or mid-west. PW-9440, Engineering News-Record.

CIVIL ENGINEER Minn. graduate, age 40. Registered Min. & Wisc. Experienced in reinforced concrete design. PW-9463, Engineering News-Record.

POSITIONS WANTED

CIVIL ENGINEER, 34; married; registered; 10 years experience design, construction, maintenance in industrial and process plants including buildings, roads, docks, utilities, piping, mechanical equipment, machine tools. Locate N.E. or N.W. states. PW-9442, Engineering News-Record.

STRUCTURAL ENGINEER, P.E., N. Y. to take work in contract, design and details of steel, concrete and timber structures. Alson Metr. Syst. and Spanish. Efficient service assured. PW-9426, Engineering News-Record.

CIVIL ENGINEER, 25, married, recent M.S. Graduate, 3 yrs year varied experience. Desires work design or construction and/or field work steel and concrete. N. Y. area preferred. PW-9457, Engineering News-Record.

ASSISTANT FIELD Engineer. Graduate civil engineer, age 23, with 1½ years field and office construction experience desires employment in building construction. PW-9454, Engineering News-Record.

CIVIL ENGINEER, Master's in structural. Married. Desires connection with firm engaged in industrial building-location immaterial. PW-9420, Engineering News-Record.

(Continued on the opposite page)

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"An Army Marches on Its Stomach"

We Have Fed Millions

KANE INDUSTRIAL SERVICE

Industrial Feeding.
Labor Camps.
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Free Employment Agencies.
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Abundant Labor Supply available for Large Projects Anywhere.

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GENERAL SUPERINTENDENT
AVAILABLE

25 Years experience responsible charge major construction—Highways, Bridges, Power Plants, Industrial Plants, Waterfront Work, Hydro-Electric Developments, Tunnels, Pipelines, etc. Spanish Speaking—Would prefer foreign assignment but would accept suitable domestic employment.

PW-9190, Engineering News-Record
330 W. 42nd Street, New York 18, N. Y.

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Monthly payments permissible. Information sent without obligation. WRITE TODAY

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POSITIONS WANTED
(Continued from opposite page)

CONSTRUCTION MANAGER or General Superintendent, 30 years experience in all construction phases, knows how to get work completed under adverse conditions, good organizer, pusher and cost conscious. Willing to travel. PW-9422, Engineering News-Record.

CIVIL ENGINEER ten years diversified heavy construction experience—field, design, and administrative. Now Project Engineer large contract. Desire change to job that will allow living majority of time one location. Location east or west coasts. PW-9421, Engineering News-Record.

SELLING OPPORTUNITY WANTED

COMPETITION IS keen. If you can use resourceful energetic successful representation in the market for your product write me. Long experience working with construction firms, both selling and purchasing. Will take selling agency or commission basis. RA-9459, Engineering-News-Record.

PATENT ATTORNEY

Patent Practice
before U. S. Patent Office. Validity and infringement investigations and opinions. Booklet and form "Evidence of Conception" forwarded upon request. Lancaster, Allwine & Rommell, Registered Patent Attorneys, Suite 454, 815-15th Street, N.W., Washington 5, D. C.

WANTED

ANYTHING within reason that is wanted in the field served by Engineering News-Record can be quickly located through bringing it to the attention of thousands of men whose interest is assured because this is the business paper they read.

EASTERN REPRESENTATION

Offered to established manufacture of equipment or materials used in the construction, water supply, petroleum, chemical and power fields. Principals technically qualified and experienced in sales engineering. Have the capacity, ability and standing to expand your sales in the East. New York Office.

RA-9427, Engineering News-Record
330 W. 42nd Street, New York 18, N. Y.

Plant For Sale—page 122

Surveying Instruments—page 127

Equipment Wanted—page 122

LEARN TO ESTIMATE

Today, more than ever before, you must know how to analyze building costs. If you want to become a successful builder, learn how to prepare a correct estimate in a hurry. Get in on the profitable work now available wherever you turn. Your success is assured if your estimates are right; otherwise you are licked before you start.

The Tamblyn System of Estimating will make a real estimator out of you in a few weeks of your spare time. We are so sure that you will want to learn it, that we will send you our complete home study course for ten days examination absolutely free. If you don't think it is the finest thing you ever saw, just return it and it won't cost you a cent. If you like it and want it, send us $8.75 when 10 days are up and $7.50 per month until $38.75 is paid.

This estimating system is based on forty years of actual construction experience. It has been sold all over the world for more than twenty years. Thousands of estimators and contractors swear by it. Our offer isn't hot air and big talk. We don't give you a diploma or a lapel button, but we do teach you down to earth estimating which will bring you profitable business.

Just send your name and address today, and we will mail you the complete course at once for your approval.

TAMBLYN SYSTEM

1115 So. Pearl St., E-312

Denver, Colo.

Bids: August 26

NOTICE OF SALE

Railway Equipment

Sealed bids will be received by the State of Louisiana, Office of the Governor, Division of Administration, Purchasing Section, 201 Capitol Annex, Baton Rouge, Louisiana, at 10:00 a.m., August 26, 1949 for the sale of Railroad Equipment located at Louisiana State Penitentiary, Angola, Louisiana, and delivered F.O.B. Angola, Louisiana, or Bains, Louisiana. Bids will be received on the following:

1—Mogul type Locomotive #44, built by American Locomotive Co., weight on drives 47 tons, total weight including water tender and fuel oil tank approximately 44 tons.
1—Prarie type Locomotive #22, built by Baldwin Locomotive Co., weight on drives 45 tons, total weight including water tender and fuel oil tank approximately 35 tons.
57—Metal fittings for wood body cane cars, standard gauge, 4 pairs wheels, 342 tons.
31—Metal fittings and frame for steel body cane cars, standard gauge, 4 pairs wheels, 248 tons.
1186—Tons—60 pound rails
230—Tons—40 pound rails
292—Tons—70 pound rails
43—Tons—Spikes
66—Tons—Angle Bars
70—Tons—Tie Plates

Bidder to submit bid based on Owner delivering material onto railroad cars at Bains, Louisiana and an alternate bid if he desires to take delivery at Angola, Louisiana, the Owner to load material onto Buyer's trucks or onto barges at Tunica Landing or Angola, the Owner to deliver material onto barges.

Locomotives and cars will be taken apart into sizes that can be handled on trucks unless delivery is made by barge in which case the amount of dismantling will be such as is agreeable to Buyer and Seller. The quantities shown are approximate and scale weighing of material delivered will governor for payment.

A Bid Bond in the amount of 5% of the amount bid bust accompany each bid, which amount shall be retained by the vendor as a performance bond to secure the faithful performance of the contract to be entered into between the vendor and the successful bidder or bidders. After the awards have been made said amounts accompanying the bids of the unsuccessful bidders will be immediately returned to them and/or each of them.

These bids will be publicly opened and read at same hour and date specified above, in Room 201, Capitol Annex. No bids will be received after date and hour specified.

The owner reserves the right to reject any or all bids and to waive any informalities.

State of Louisiana
Office of the Governor
DIVISION OF ADMINISTRATION
J. H. Rester
Commissioner of Administration
By
D. H. Whittington
Purchasing Supervisor

PUBLIC AUCTION SALE

SHIP YARDS

Excessive Equipment and Supplies of the Brooklyn Plant of the U. S. Shipbuilding Corp. Located at 71 Paidge Avenue, near Provost Street, Brooklyn, N. Y.
2 Blocks from Vernon Avenue Bridge

Will be Sold at Public Auction, Thursday, July 28th at 11:00 A.M.

CONSISTING AS FOLLOWS

Crawler & Tractor Cranes—Trailers and Trucks—Bulldozers & Tractors—Compressors—Truck Mounted, Portable & Stationary—Buckets—Hoists—Boilers—Electric Steering Gears—Automatic Welders—Arc Welders—Cable—Miscellaneous Equipment—600,000 lbs. of New Steel, Angles & Plates—Plumbing Fittings—Complete Machine Shop
7 Portable Sheet Metal & Steel Buildings

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Building Construction Cost Data

1949 (7th) Edition

A 90-page booklet of tabulated construction costs revised as of January 1949. 1400 items alphabetically arranged and broken down for labor and material. Concise, Comprehensive, *Up-to-date, Handy*. $2.50 Postpaid.

R. S. MEANS

P. O. Box 62N Duxbury, Mass.

SEARCHLIGHT SECTION

TRACTORS

Cat. D7 with straight blade and D.D.P.C.U.
Cat. D4 Traxcavator with 1 yd. bucket.
Int. TD18 angledozer blade, factory new.
4—Cat. D-8-2U Series, DDPCU, st. blade
6—Cat. D-8-8R Series, DDPCU, st. blade
1—Factory new Cat D-8 just rec'd. DDPCU, st. blade

READY-MIX CONCRETE PLANTS

400 bbl. Bulk Cement bin weight batcher. New.
Two 100 ton 3 compt. aggregate bins. Complete.
600 bbl. Bulk Cement Silo.
Johnson 192 ton 3 compt. aggregate bin with 2 yd weighbatcher, under car aggregate unloader and bucket elevator.
Heltzel 100 ton 3 compt. aggregate bin with weighbatcher.

SHOVELS—CRANES—DRAGLINES

Marion Model 111 3½ yd. Diesel Shovel.
Buc-Erie Model 54B, 2½ yds. Diesel Shovel.
Lima 1201 High Lift Diesel Shovel.
P&H Model 1055 High Lift Shovel, Buda Diesel.
Lorain 820 2 yd. Diesel Shovel. Excellent.
Northwest 80D 2½ yd. Diesel Shovel. 1946.
P&H 855B 2 yd. Diesel Shovel. New Feb. 1947.
Northwest 6, 1½ yd. Diesel Shovel. 1946.
Buc-Erie 200B, 5 to 10 yds. Elec. Shovel.
Buc-Monighan 6 to 8 yds. Diesel Dragline.
P&H 1055 Dragline, Buda Diesel engine, 4 yd.
Buc-Erie 120B 4 to 5 yds. Elec. Dragline.
Lorain MC4 Moto-Crane. New 1943. 75' Boom.
Lorain MC4 Moto-Crane. Rebuilt 1946. 70' Bm.
P&H Model 255A 18 ton Truck Crane.
Bay City Model 180 Truck Crane 20 ton. Excellent.

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3 Caterpillar 12 Patrol Graders, 9K Series.
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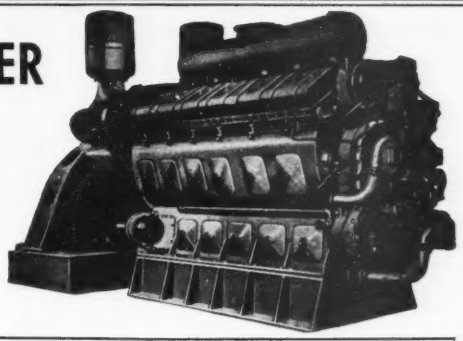

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NEW PRODUCTS

Collector Combines Bucket Loading With Mechanical Packing

The Pax-all rubbish-collection unit combines bucket loading with a mechanical packing principle. It can be used for packing loose garbage, boxes and cans, general refuse and rubbish or ashes. Because of its simplified design and construction which eliminates dead weight, the Pax-all is engineered for short standard wheelbase trucks. The bucket is operated from within the cab by the driver; unskilled loading personnel cannot damage, jam or misuse the unit. As the bucket reaches the top, it dumps its load through a hatch in the body which opens and closes automatically. As the bucket lowers to the rear of the unit, the packing panel inside the body tightly compresses the newly deposited load automatically. The packing action is generated mechanically and the compression ratio of the mechanical linkage increases in direct proportion to the weight of the load. A cam-type precision-built hoist powers the Pax-all for loading and dumping. The unit operates in a low-pressure range in order to assure minimum wear on pump, power take-off and truck transmission.—Woodson Products, 4200 E. Nevada, Detroit 12, Mich.

Gasoline-Powered Screed

A gasoline-powered vibrating screed permits two operators to strike-off a slab 12 ft. wide and 10 in. thick in stiff concrete. The complete unit consists of a 1½-hp. Power-Pak, with built-in vibrator, mounted on heavy brackets bolted to the beam. The engine base plate is mounted on four multiplane vibration dampeners to absorb screed vibration in both the vertical and horizontal planes. End roller supports are attached at each end of the beam by means of standard rubber vibration dampeners. Vertical adjustment is provided so that the beam may be elevated out of contact with the side forms. Four sizes are furnished, providing spans of 6, 8, 10 and 12 ft. All beams are 3 in. wide and have depths of 8, 10 and 12 in. The Power-Pak, together with all essential parts and accessories, may be purchased separately.—Stow Mfg. Co., Binghamton, N. Y.

Altimeters for Surveys

Surveying altimeters, graduated in one-foot intervals, are said to be accurate to one foot, and sensitive to altitude changes in inches. The Microaltimeter has a range of 6,000 feet. The Model M-1 weighs 4½ pounds. It will be supplemented by a Model M-5 with a range of 15,000 feet graduated in 5-foot intervals; and the Model MM-1 with a range of 5,000 meters, graduated in intervals of one meter.—American Paulin System, 1847 S. Flower, Los Angeles, Calif.

Vibrating Concrete Float

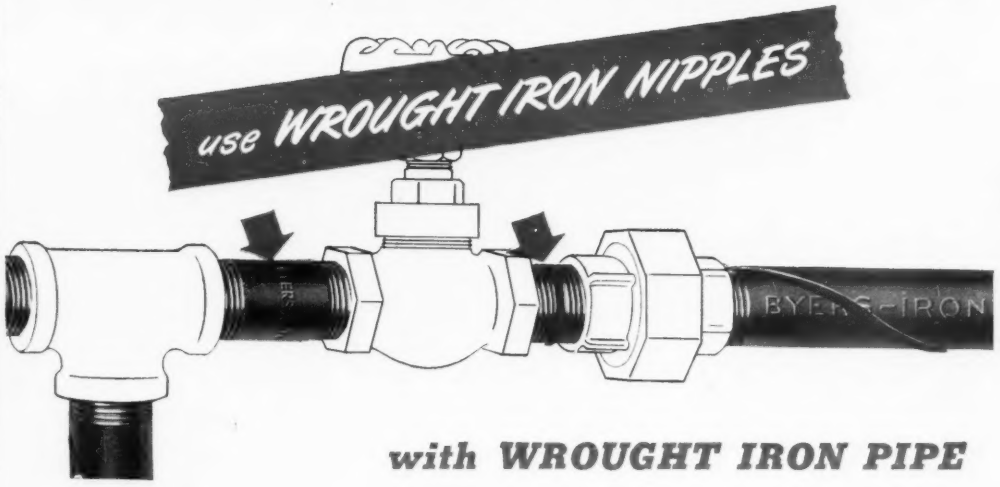
A light-duty vibrating float is designed for use with extra-low-moisture-content concrete. The units are simple in construction, being made up of small 15-lb. pulsating electro-magnet vibrators mounted on a 24 x 30-in. steel float, a three-section adjustable 7½-ft.-long tubular handle, and a 35-ft. three-conductor grounded cable. It is designed for operation on 110-volt ac. —Syntron Co., 328 Lexington Ave., Homer City, Pa.

Double-Hung Window Unit

Double-hung wood window unit employs a unique method for achieving weather tightness. The Andersen Pressure-Seal window eliminates metal weatherstripping at the sides, and re-

(Continued on page 130)

Avoid "Weak Links" in your piping systems—



with WROUGHT IRON PIPE

When you specify wrought iron pipe to lick some corrosion problem, assure 100% protection by specifying that the pipe nipples also must be wrought iron. Neglect of this simple precaution will leave weak spots in your lines, and set the stage for maintenance headaches.

METHOD OF SPECIFICATION

Merely stating that the piping "system" is to be black or galvanized wrought iron is not enough; the use of wrought iron nipples should be specifically designated. This may be done by requiring that the wrought iron nipples shall be made of pipe conforming to the requirements of A.S.T.M. Specification A72-45, Federal Specification WW-P-441a, Navy Specification 44P11k, or any accredited proprietary specification.

WIDE RANGE OF SIZES

Byers Wrought Iron nipples, both standard weight and extra strong, are available in a wide range of sizes and lengths, either black or galvanized. They are manufactured from new, tested, full-weight wrought iron pipe in accordance with the standards established in the specifications of leading technical organizations. All nipples are furnished with right-hand threads unless otherwise specified; nipples with right and left-hand threads are also available. Nipples are furnished "close" or to length as specified.

IDENTIFICATION

The word "Byers" and the weight —either "Std." or "X Stg." are machine stamped around the circumference of Byers Wrought Iron nipples. On close nipples, where it is impractical to stamp on the threads, a red band is used. These markings provide quick, positive identification of Byers Wrought Iron nipples, and help to avoid any danger of accidental substitution of non-durable nipples in the line.

IN WELDED SYSTEMS USE WROUGHT IRON WELDING FITTINGS

Wrought iron welding fittings are available in a wide range of types and sizes from leading fitting manufacturers. Just contact your supplier.

Wrought iron nipples are also available from a number of manufacturers. The identification used on such nipples may be learned by consulting the supplier.

INHERENT CORROSION RESISTANCE

The superior resistance of wrought iron nipples comes from the unique composition and structure of the material. Tiny threads of glass-like silicate slag, distributed through the body of high-purity iron, halt and "detour" corrosive attack, and so discourage pitting. The fibers also anchor the initial protective scale, which shields the underlying metal.

The best guide in applying wrought iron is a knowledge of its character and properties. The complete story is presented in the booklet, "The ABC's of Wrought Iron". Ask for a copy.

A. M. Byers Co., Pittsburgh, Pa. Established 1864. Boston, New York, Philadelphia, Washington, Atlanta, Chicago, St. Louis, Houston, Salt Lake City, Seattle, San Francisco. Export Division: New York, N.Y.

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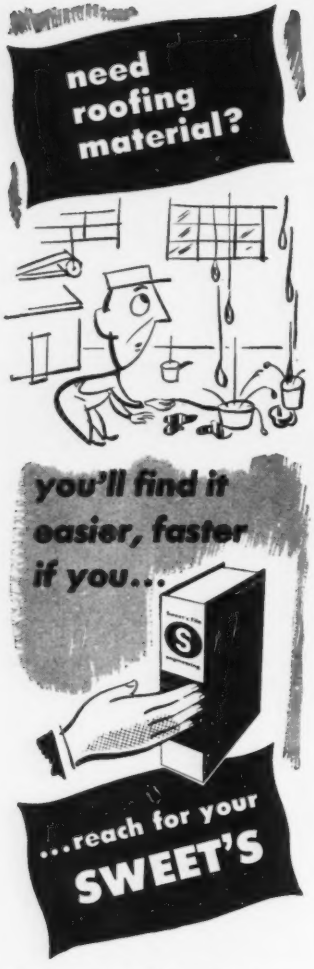

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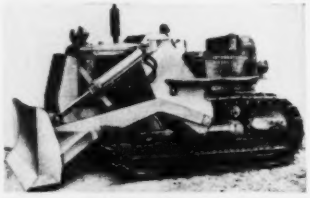
quires no weights, springs, or balances to hold the sash in place. Sash-holding and crack-sealing mechanism is hidden in the sash stiles. Thumb levelers, located at the base of the windows, move the pressure strip causing a wedging action at the side, thereby causing a tight fit, and sealing cracks on the sides. Sashes are easily removed because they are not permanently attached to the sash runs. The wedging action eliminates rattles. The Andersen units are available in widths from 2 ft. 0 in. to 3 ft. 4 in. and in height from 3 ft. 2 in. to 5 ft. 2 in.—ANDERSEN CORP., BAYPORT, MINN.



Dozer for Wide-Gage Tractor

Hydraulic bulldozer is designed for International Harvester TD-14 wide-gage tractors. Mounted completely on the main frame of the tractor, it provides a standard-gage blade for a wide-gage tractor, making possible full utilization of tractor power without overload. Blade is held in any position by holding force of hydraulic rams. Full advantage of spring loading is utilized to eliminate dead shock loads to dozer and tractor through use of tractor equalizer spring. Engine is easily accessible without interference from dozer parts. Rear of tractor is entirely clear for winch mounting, rear power take-off, or alteration of tractor drawbar.—WM. BROS. BOILER & MFG. CO., 1057 TENTH AVE., S. E., MINNEAPOLIS, MINN.

Truck Crane

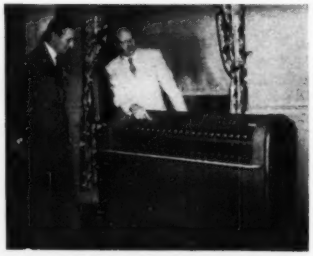
A full ball bearing turntable with 358 one-inch steel balls eliminates center pin and hook rollers on the Little Giant truck-crane. Another prime feature is complete interchangeability for gears (cut steel) and clutches (large internal band type). The fully-convertible machine (6-yd. crane; ½-yd. dragline, shovel and trench hoe) is powered by a 50-hp. Minneapolis-Moline engine. The boom hoist is independent, worm driven. One 16-ft. boom handles both a 12-ft. shovel dipper stick or an 8-ft. hoe handle. The crane-dragline boom is 30 ft. The Little Giant is also available as a self-propelled unit on rubber, and in a ¾-yd. size. — DES MOINES DRAGLINE SERVICE, FIRST AND PINEHILL DR., DES MOINES, IOWA; NATIONAL DISTRIBUTION BY PAUL M. COLE CO., 30 N. LASALLE ST., CHICAGO 2, ILL.

Checks Subsurface Conditions

Portable refraction seismograph is recommended for determining exact subsurface conditions including depth of bedrock and composition of foundation ground. In operation, a small charge of dynamite is placed about five feet below the surface of ground, a number of sensitive detecting units—electrically connected to a master seismograph unit—are set at intervals on the surface, and the charge set off. Shock waves sent out through the ground transmit impulses to the main unit where they are recorded on a strip of photographic paper. With this data, geological engineers can ascertain the nature of material and the distance to bedrock, since the shock waves travel at different speeds through different types of material. Equipment of this type is manufactured by—CENTURY GEOPHYSICAL CORP., NIELS-ESPERSON BLDG., TULSA, OKLA.

Large Bottom-Dump Trailer

The Model E-50 bottom-dump trailer has a heaped volume capacity of 67 cu. yd. and a weight capacity of 50 tons. This cable-controlled hauling unit operates in conjunction with a Roadster Tournapull. The combined unit is 47 ft. 7⅞ in. long, 11 ft. 4½ in. wide, 10 ft. 5½ in. high, with the cab, and has a wheelbase of 28 ft. 9½ in. Maximum ground clearance under the hauler with the doors closed is 12 in.; with the doors open, 20 in. It has an empty weight of 65,000 lb.; a speed range of 3.24 to 28.44 mph; a gage of 8 ft. 4½ in.; and is mounted on four 40-ply 30x33 tires.—R. G. LE TOURNEAU, INC., PEORIA, ILL.



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(*Continued on page 132*)

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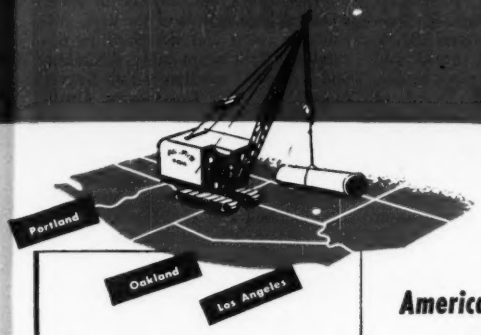

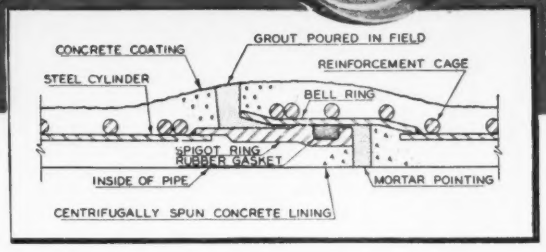

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Typical installations

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- City of Ellensburg, Washington–37,100′ of 18" and 24", 150 psi–1948
- City of Long Beach, Calif.–7165′ of 20", 24" and 30", 150 psi–1947–'49
- U. S. Air Force, Muroc Air Base, Muroc, Calif.–20,300′ of 14", 150 psi–1947
- U. S. Army, Richland, Washington–Hanford Engineering Works–120,500′ of 24", 30" and 42", 150 and 250 psi–1944
- San Diego County Water Authority–128,600′ of 14" thru 39", 150 psi to 225 psi–1947–'48
- U. S. Navy, Treasure Island, San Francisco–14,000′ of 14", 150 psi–1944
- City of Whittier, Calif.–12,900′ of 14", 16", and 24", 150 psi–1948–'49

American Concrete Cylinder Pipe helps reduce the cost of delivered water throughout the Pacific States

Although the Company began the development and manufacture of American Concrete Cylinder Pipe eighteen years ago, 1941 marks the first appearance of this composite, modified prestressed pipe in its present form. Since 1941, this pipe has become established throughout the West as one of the outstanding developments in the field of pressure transmission of water. American Concrete Cylinder Pipe combines efficiency and economy in the medium diameter range from 14" to 36" inclusive and in the range of operating pressures from 100 psi upward. This pipe is manufactured in nominal lengths of 30 feet. Its design incorporates the physical properties of steel with the protection and permanency of concrete. The Lock Joint Rubber Gasket Joint simplifies installation–assures positive water-tightness under normal operating conditions.

The economies of American Concrete Cylinder Pipe are reflected in initial cost, ease of installation, sustained capacity, and trouble-free service. All of these factors mean substantial savings in the cost of delivered water. Complete information available upon request.

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This Company's Portland Plant is now fully equipped to furnish American Concrete Cylinder Pipe to water users in the Pacific Northwest. Inquiries to Box 1898, Piedmont Station, Portland 11, will receive prompt attention.

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Diebold Triple-Purpose camera. This machine will handle up to 400 pieces of 42-inch prints per hour. Full-size blow-ups can be made as needed, with no appreciable loss in quality.—DIEBOLD CO., CANTON, OHIO.

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This unit is said to be like a complete saw shop in one machine—a cut-off saw, a miter saw, a rip saw, a tilting arbor saw, a double miter saw, and a variety saw. Using the proper tool it becomes a dado machine, grooving machine, a rabbeting machine, or it can be used for carpenter maintenance, pattern shop work, crating and boxing, salvage, outside construction and many other types of wood cutting operations.—DEWALT, INC., 201 MARTHA AVE., LANCASTER, PA.

Air Starters

Five sizes of air starters for gas, gasoline or Diesel engines—from 3 to 15 hp. on 100 lbs. air pressure—combine high torque and elimination of battery maintenance. When the air valve is open, an air actuated starter pinion automatically engages the ring gear just before the starter begins to crank the engine.—GARDNER-DENVER CO., QUINCY, ILL.

Combination Blast Gun

The Enpro combination blast gun is an air-operated, portable, highly efficient gun which is a powerful sand blaster for abrasive use; a speedy solvent applicator for cleaning; a forceful, penetrating liquid sprayer; and a hard driving blow gun. It is easily connected to any air line. The nozzle is readily changed as required. Paint melts away; rust, scale and oxidation disintegrate; solvents penetrate to flush out grease, gum and tar; oils and liquids penetrate where needed.—ENGINEERED PRODUCTS, INC., 1224 SPUR BLVD., DENVER, COLO.

Manufacturers' Publications

A Mobile Repair Shop—This 38-page stiff-bound catalog contains complete information on the Model M mobile repair shop. It contains complete specifications for the shop, including the tools and equipment of which it is comprised and of the chassis on which it is mounted. Blueprints are used to illustrate the location of the various pieces of equipment, and drawings illustrate each tool. Descriptive passages listing the various features of the mobile shop are provided in English, Spanish, and French.—COUSE MFG., INC., 300 PASSAIC ST., NEWARK 4, N. J.

Washing Plant—An 8-page folder, profusely illustrated, with a full 2-page cut-away drawing in two colors describes a completely redesigned 305-W washing plant for sand, gravel and crushed aggregates. The plant scrubs, cleans and washes 50 to 75 yd. of aggregate per hour. It has a revolving scrubber drum and revolving screen capable of separating three sizes of stone and sand and depositing them in bins under the plant for truck loading. One man operation and low initial cost of the equipment make the plant profitable for washing and cleaning aggregate.—PIONEER ENGINEERING WORKS, 1515 CENTRAL AVE., MINNEAPOLIS 13, MINN.

Hydraulic Valves—A 52-page catalog illustrates and describes about 90 different models of Gerotor 4-way hydraulic valves. Copies of Section 201 may be obtained from — GEROTOR MAY CORP., BALTIMORE 3, MD.

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Plastic-Faced Plywood—A 4-page folder describes the advantages of plastic-faced plywood for use as a building material or for concrete forms. The bulletin describes the material, lists several types of jobs for which it is suited, and lists eight of its features including weather and water proofness; abrasion, stain and vermin resistance; and produces extremely smooth surfaces. The catalog contains a complete list of specifications for G-P-X as well as photographs showing buildings in which this material has been used.—GEORGIA-PACIFIC PLYWOOD & LUMBER CO., 350 FIFTH AVE., NEW YORK 1, N. Y.

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Prestressed-Concrete Tanks—Principles of prestressing concrete as applied by the Preload Corp. in the construction of tanks and other structures are described and explained in a 24-page catalog. Booklet discusses the development of prestressing, shows typical uses of prestressed structures, contains job information on typical Preload projects, and engineering data on the design of structures. Also contains a list of questions and answers of interest to engineers and specifications for the materials used.—THE PRELOAD CORP., 211 E. 37TH ST., NEW YORK 16, N. Y.

Metal Joining—A 32 page pocket-size handbook and catalog lists all the All-State rods and fluxes, including several new items. It contains tables of characteristics, full application information, and helpful hints of general interest to workers in the metal-joining industries. Among the new products listed is a cutting electrode, a tinning rod and a sampler kit containing silver solder and ten other types of gas welding rods with appropriate fluxes.—ALL-STATE WELDING ALLOYS CO. INC., 273 FERRIS AVE., WHITE PLAINS, N. Y.

Cellular Glass Insulation—Informative data, plus technical specifications, photographs, and many charts and diagrams have been used in a new brochure to introduce cellular glass insulation, PC Foamglas, to the residential field.—PITTSBURGH CORNING CORP., 307 FOURTH AVE., PITTSBURGH 22, PA.

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It will pay you to talk over the use of General Electric Deltabeston AVA cables with your electrical contractor. For specific information, write to Section Y33-732, Construction Materials Department, General Electric Company, Bridgeport 2, Connecticut.

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* The figure above was worked out for a load of 470 amperes. Similar savings can be realized for other loads.

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ENGINEERING NEWS-RECORD

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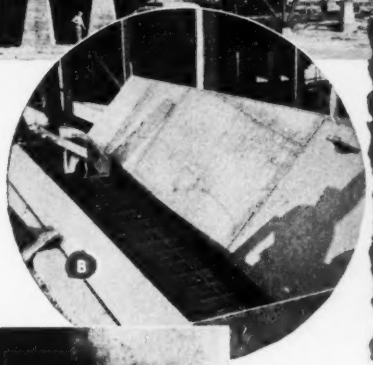
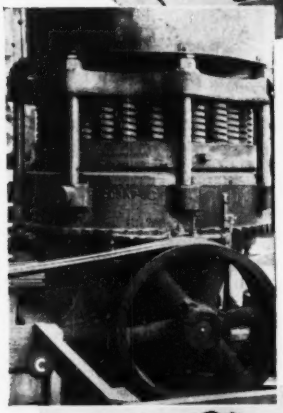


Large Tonnage

of either
FINE or BASE SIZES



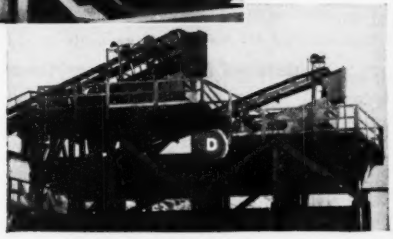
● The LYCOMING SILICA SAND COMPANY'S new Lime Bluff Quarry Plant in the Helderberg limestone formation between Muncy and Hughesville in Lycoming County, Pa., is designed to turn out *big tonnage*.

Although planned to produce about 90-100 tons per hour of minus 1¼" aggregate, this plant regularly hits as high as 125 tons hourly when producing this and smaller sizes.

Look at its Telsmith equipment. You'll see *why* it does.

HIGHLY FLEXIBLE too, this plant can make 8 to 10 finished sizes at the same time, including a large percentage of both fine and coarse sizes. It turns out big tonnage of fine stone for bituminous construction and state highway maintenance, without excessive stock-piling of larger sizes—or it makes base stone, and lots of it, when needed.

Modernizing or building? Let Telsmith Complete Plant Service help you build in bigger tonnage with utmost flexibility. Get Bulletin Q-2. Q-21



A Telsmith Hercules Scalper
B Telsmith Heavy Duty Apron Feeder
C Telsmith Fine Crushing Gyrasphere
D Two Telsmith 2-Deck Vibro-King Screens

Telsmith EQUIPMENT used in Lime Bluff Quarry Plant

- 36" x 16' Heavy Duty Apron Feeder
- 30" x 179' Belt Conveyor
- 60" x 21' Hercules Scalper
- 4' x 12' 3-Deck Pulsator
- No. 48 Standard Gyrasphere
- 24" x 133' Belt Conveyor
- Two 5' x 12' 2-Deck Vibro-King
- No. 28 Fine Crushing Gyrasphere
- 24" x 100' Belt Conveyor

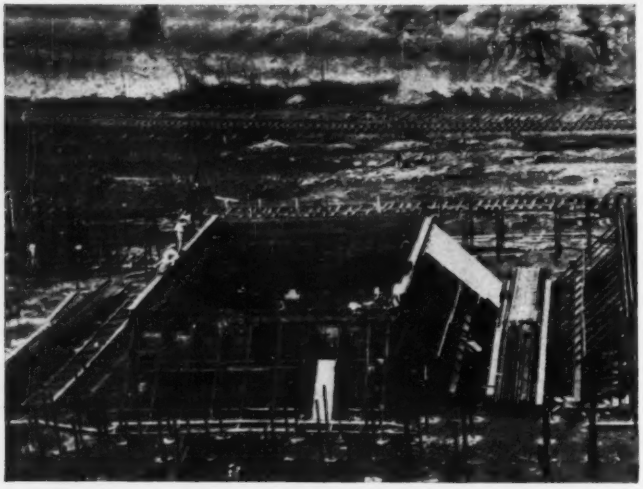
SMITH ENGINEERING WORKS, 500 E. CAPITOL DRIVE, MILWAUKEE 12, WISCONSIN

Cable Address: Sengworks, Milwaukee

51 East 42nd St. New York 17, N. Y. · 211 W. Wacker Drive Chicago 6, Ill. · 713 Commercial Trust Bldg. Philadelphia 2, Pa. · 238 Main Street Cambridge 42, Mass. · Boehck Eqpt. Co. Milwaukee 3, Wis. · Mines Eng. & Eqpt. Co. San Francisco 4, Calif.

Clyde Equipment Co., Portland 9, Ore., & Seattle 4, Wash. • General Machinery Co., Spokane 1, Wash. • Brandeis Machinery & Supply Co., Louisville 8, Ky. • Rish Equipment Co., Charleston 22, & Clarksburg, W. Va.—Roanoke 7, & Richmond 10, Va. • Wilson-Weesner-Wilkinson Co., Knoxville 8, & Nashville 6, Tenn.

READER COMMENT



FIRST BUCKET of concrete being placed in Gatun Locks of the Panama Canal 40 years ago.

Another First Bucket

Sir: In your issue of May 12, page 52, you show a picture of the first bucket of concrete being placed at Mt. Morris Dam on the Genesee river in New York.

Enclosed is a photograph of another first bucket, poured just forty years ago on the Panama Canal.

I worked in the engineering office overlooking the site of the Gatun Locks and was all set to get a picture of the first bucket, if and when it was ever poured. Every day for about a month "tomorrow" was going to be THE day, but always something went wrong with the concrete mixing operations, the weather, or dispositions.

Came another dampish day and the report circulated in the office that concrete was going to be poured at last. I rushed out and got the first bucket just as it dumped the concrete into the first foundation monolith of the Gatun Locks.

ARTHUR RICHARDS
Executive Director
Larchmont, N. Y.

Quicker Map Service

Sir: Recent developments in methods and policy by the U. S. Geological Survey have greatly increased the usefulness of the topographic quadrangle mapping by that agency.

It is now possible, as soon as the mapping of any quadrangle has reached the stage where color separation drawings have been prepared, for any map user in the Pacific Coast States to obtain from the Pacific Division Office of the U. S. Geological Survey, Federal Building, Sacramento, California, a one-color print from a composite film positive on a scale of 1:24000 (1 in.-2000 ft.).

These large-scale prints will be available for all new quadrangles mapped from now on, even to the summit of the Sierras and for desert areas. They will be very close to accurate scale and may be readily joined with adjacent quads when so desired. This will make possible a uniform working scale throughout the West.

For the valley and foothill areas which are to be published in color as 7½-min. quadrangles, the one color print (obtainable a few months before the published map will be available) will be printed direct, in a vacuum frame, from the composite film positive made up from the color separation negatives in such a way as to subdue the contour lines and accentuate the streams so that canal lines, for example, may be more readily distinguished from contours on the one color prints. The price of such direct prints will be 40 cents each.

For areas which are to be published only as 15-min. quadrangles, a film positive for each of the four 7½-min. quadrangles will be made by enlargement from the 15-min. composite. For such quadrangles, the charge will be 60 cents per print. This will cover the cost of the film positive enlargement when the demand from various map users reaches a total of 50 prints.

Similar one-color 7½-min. quad prints may also be obtained from any previously published 15 min. by enlargement, but in such cases the cost of the enlargement must be paid by the person or agency ordering the prints, because other demands for such older mapped quads are not expected. By appropriate use of color filter, the streams are preserved in the enlargements made from previously published maps.

This service will now make available, with very nearly the same percentage of accuracy as the published quads, maps on a scale large enough to be useful for many engineering and geological studies without the heretofore necessity of photostatic enlargement of the 1 mile per inch published maps, which method, it was proven by checks on enlargements actually used in engineering work, increased the allowable error of the published map by 5 to 10 times due to uneven shrinkage of the wet process papers used.

The officials and employees of the U. S. Geological Survey who cooperated so wholeheartedly in the development of this new service should be congratulated, and they should be given full support of all engineering, geological, mining, lumbering, and agricultural organizations, and industries in securing adequate funds for the continuance and speeding up of their good service which is a very necessary foundation for many industrial and agricultural projects, as well as needed for possible defense.

EARNEST A. BAILEY
Chico, Calif.

Data on Beam Twisting Wanted

Sir: I would appreciate more data on the case described in the letter by Jules Lewis, "Beams Twisted by Formwork," (ENR, May 12, p. 78). To my mind any beam that twists 10 deg. must be either incorrectly designed or has an incorrect connection design, or faulty workmanship exists in the steel content or erection.

Mr. Lewis infers that similar beam rotations are probably occurring throughout all construction. This assumption cannot be made on the basis of one building.

CHARLES WEISMAN
Structural Engineer
United Engineers & Constructors, Inc.
Philadelphia 5, Pa.

"Speaking of truck shovels.....
Why did you buy a MICHIGAN?"

"Because it's EASY to HANDLE!"

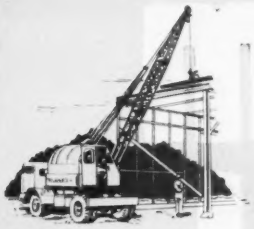
On the road, for example, it's as easy to drive as any ordinary truck. On the job, its control makes a hit with operators. MICHIGAN'S air ram clutches are fast and smooth . . . they take the work out of operating. My operators *like* those finger-tip air controls—and *I* know that they've paid off in faster, more efficient operation . . .

And then there's MICHIGAN'S *remote control.* When you pull onto the job, you're ready to go! There are no draglinks to disconnect, no adjustments to make. You can drive and steer from the turntable cab with the cab in any position. The turntable engine supplies the power.

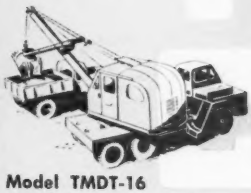
Take all these easy-handling advantages together and you can see why I advise you to get a MICHIGAN!"

Write for Bulletin 100—
"On the Job with MICHIGAN"

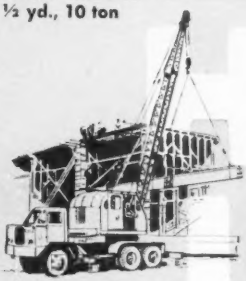
DID YOU KNOW
you can buy
a brand new
MICHIGAN
TRUCK CRANE
complete with chassis
for as little as $10,250
F.O.B. factory?



Model T6K
⅜ yd., 6 ton



Model TMDT-16
½ yd., 10 ton



Model TLDT-20
12 ton

Series 8
½ yd., 8 ton

Model C-16
½ yd., 8 ton

MICHIGAN

MICHIGAN POWER SHOVEL COMPANY
500 Second Street, Benton Harbor, Michigan, U.S.A.

World's largest rubber-tire crane swings 45-ton loads on TIMKEN® bearings

BIG construction projects, logging and other operations get an extra lift when this giant Lorain MC-820 Moto-Crane swings into operation. It's said to be the largest two-engined, rubber-tire crane ever built, and can be equipped with booms up to 100 feet in length.

To help this huge crane swing heavy loads smoothly and easily, the turntable rollers and swing drums are equipped with Timken® tapered roller bearings.

Because of the line contact between the rolls and races, Timken bearings have tremendous load carrying capacity. Yet their true rolling motion and incredibly smooth surface finish enables them to operate freely and frictionlessly. Due to their tapered construction, they carry both radial and thrust loads in any combination.

Made of the finest steel ever developed for tapered roller bearings—Timken fine alloy steel—Timken bearings normally last the life of the machine. For long life and trouble-free performance, see that the trade-mark "Timken" is on the bearings of all the machines you build or buy. The Timken Roller Bearing Company, Canton 6, Ohio. Cable address: "TIMROSCO".

This symbol on a product means its bearings are the best.

LORAIN MC-820 MOTO-CRANE

made by Thew Shovel Co., Lorain, Ohio, has turntable rollers and swing drums equipped with Timken bearings for smooth, long-life operation.

NEW TIMKEN BEARING CUTS RUN-OUT IN HALF!

Until now, the Timken "Zero" bearing has been the last word in bearing accuracy. Now Timken offers industry the "Double-Zero" bearing—*twice as accurate* as the "Zero"! Maximum run-out of the new "Double-Zero" bearing is only 75 millionths of an inch—*half* the 150 millionths run-out of the "Zero" bearing.

What an opportunity for manufacturers of machines where extreme accuracy is essential! Available in standard single row types, up to 10" O.D. Write for further information.

TIMKEN

TAPERED ROLLER BEARINGS

TIMKEN 1899 50 YEARS 1949

NOT JUST A BALL ○ NOT JUST A ROLLER ▭ THE TIMKEN TAPERED ROLLER ▭ BEARING TAKES RADIAL ◫ AND THRUST ◫ LOADS OR ANY COMBINATION ✳